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64TH CONGRESS
1st Session

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DOCUMENT
No. 4

A NAVAL AUXILIARY MERCHANT MARINE

SPEECH

OF

HON. WILLIAM G. McADOO

SECRETARY OF THE TREASURY

DELIVERED BEFORE THE

CHAMBER OF COMMERCE OF INDIANAPOLIS, IND.
ON OCTOBER 13, 1915

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A NAVAL AUXILIARY MERCHANT MARINE.

SPEECH OF HON. W. G. McADOO, SECRETARY OF THE TREASURY, BEFORE THE CHAMBER OF COMMERCE OF INDIANAPOLIS, IND., OCTOBER 13, 1915.

The terrible events of the past year in Europe, and the acute situations which have arisen in our foreign relations, have brought forcibly to the front the necessity for greater naval and military preparedness than our people have heretofore believed to be necessary for the national safety. Our "splendid isolation," upon which we have relied so much in the past as our chief protection, has been neutralized in great measure by the developments of modern science. Wireless telegraphy and wireless telephony, aeroplanes, fast steamships, powerful battleships, long-range guns, high explosives, and submarines which can cross the Atlantic and Pacific have awakened us to a realization of the fact that the great ocean barriers have largely disappeared, and that we may in time become the object of attack by hostile powers. We have been forced to consider the new measures which are essential to put the country upon a basis of greater security. We must not approach this subject in hysterical fashion; we must not take counsel of fear, but counsel of prudence, reason, and intelligence. We are so fortunately placed that we do not have to adopt a militaristic policy as that term is commonly understood. Our geographical position makes it unnecessary for us to maintain such formidable military establishments as those of the great powers of Europe. The most indispensable factor in any sensible plan of national defense is a powerful navy, capable of striking with effect—both offensively and defensively—supplied with essential naval auxiliaries in the form of an American merchant marine and manned by American seamen who are ready and willing to fight for the Stars and Stripes against any enemy on the face of the earth.

NAVAL AUXILIARIES.

What is a naval auxiliary? It is a fleet of merchant vessels so constructed that they may render essential service and assistance to our battleships and cruisers in time of war and serve the needs of our commerce in time of peace. A navy, no matter how strong in battleships, cruisers, torpedo boats, and submarines, is only partially equipped without a merchant marine auxiliary. It is a fact, and every naval expert will so testify, that a merchant marine naval auxiliary is just as essential to the effectiveness of the Navy, considered as a complete fighting machine, as the guns upon the decks of our battleships and the seamen upon whose skill and valor the effectiveness of those guns depends. Why is this so? Because battleships and cruisers and torpedo boats and submarines have to be furnished at sea with coal, provisions, and supplies of all kinds. Fighting vessels can not carry sufficient supplies to remain long from their home bases, and they must have these essential auxiliaries in order to enable them to stay at sea and engage in effective offensive and defensive operations away from their home ports.

UNPREPARED FOR SPANISH WAR.

We can not, with safety, rely upon our ability to purchase or charter suitable naval auxiliaries when a crisis appears. The very essence of preparedness for the Navy is to have these vessels of suitable types and construction where we can put our hands on them quickly. To prove this I need only tell you what happened when war with Spain broke out in 1898. We had no naval auxiliaries—no Army transports. We were utterly unprepared. We had to go into the market and buy immediately any and every kind of boat that could be hastily adapted to our purposes, and, of course, we paid fabulous prices for them. When a man, or a government, has to have something the other fellow has got, and that fellow knows that this something can't be gotten from anybody but himself, he exacts the highest possible price and gets it. This is human nature. The Navy alone bought at that time 102 vessels as naval auxiliaries and paid, in round numbers, the fabulous sum of $18,000,000 for them. There is no officer of the Navy who knows about these purchases who won't admit that most of these vessels were junk.

The Navy Department sold 25, or one-fourth of them, since the war for the paltry sum of $1,167,638. Listen to these figures:

Zafiro, bought for	$87,597.00	
Sold to Chicago Junk Co. for	3,300.00	
Loss		$84,297.00
Yosemite, bought for	575,000.00	
Sold for	11,522.04	
Loss		563,477.96
Vulcan, bought for	350,000.00	
Sold for	175,750.00	
Loss		174,250.00
Hornet, bought for	117,500.00	
Sold for	5,100.00	
Loss		112,400.00
Niagara, bought for	200,000.00	
Sold for	75,563.00	
Loss		124,437.00
Alexander, bought for	206,825.00	
Sold for	17,400.00	
Loss		189,425.00
Hector, bought for	200,000.00	
Sold for	65,150.00	
Loss		134,850.00
Total loss		1,383,136.96

Here are seven vessels, bought hastily for naval auxiliaries, at a total cost of $1,736,922. They were sold for $353,785.04, making a total loss to the Government of $1,383,136.96, or 80 per cent of the original investment. Isn't this a monument to American intelligence?

But we had to take anything we could get and pay any price the shipowner or broker asked, in order to send our fleet just a little way from home—to Cuba. This is the penalty we paid for our failure to create a real naval auxiliary. Unhappily we have learned nothing from that painful lesson and are in worse condition to-day than we were in 1898, so far as merchant marine naval auxiliaries are concerned, because our Navy is much larger and its requirements more exacting.

In addition to the $18,000,000 spent by the Navy, the War Department spent millions for vessels to transport troops. If we build a real and efficient naval auxiliary, we shall have the right kind of vessels to supply the Army with transports when it needs them.

NAVAL AUXILIARIES LACKING TO-DAY.

We have not to-day under the American flag sufficient vessels to give our Navy, in case of war, the support and assistance which is indispensable to its efficiency. I do not ask you to take my word for this statement. I will give you the testimony of the Secretary of the Navy himself. In June last I addressed the following inquiry to the Navy Department:

> Considering our Navy as it is to-day, and having reference to its maximum usefulness and efficiency in time of war, what number of merchant vessels and of what total tonnage would be required?

Admiral Benson, who was at the time Acting Secretary of the Navy in the absence of Secretary Daniels, replied as follows:

> There would be required 400 merchant vessels for auxiliaries, with a total of 1,172,000 gross tonnage. In addition to the above, should our own coast be invested, or even occasionally visited, there would be required a large number of small vessels fitted for mine sweeping—say at least 324 of such vessels, of about 150 gross tons each.

Then follows a statement of the various types and characteristics of the vessels required; but it is hardly necessary to give these details beyond saying that they cover fleet scouts, colliers, oilers, supply and repair ships, transports, ammunition supply ships, hospital ships, destroyer and submarine tenders, etc.

This estimate does not take into account future needs of the Navy. As it increases each year, our naval auxiliary merchant marine must increase proportionately.

There is no doubt of our ability to supply from our coastwise vessels the 324 small vessels for mine sweeping referred to in Admiral Benson's statement; but we are not so fortunately situated with respect to the 400 merchant vessels for auxiliaries, aggregating about 1,172,000 gross tonnage, to which the admiral refers. Undoubtedly a large part of this tonnage could be drawn from ships now under American registry; but such ships would in many respects be makeshifts and not suitable either in type, speed, or construction to render in the highest degree the service which a well-developed navy would require.

I am informed by the Navy Department that we could draw from our present merchant marine approximately 700,000 gross tonnage of vessels that could be converted into naval auxiliaries. This leaves us with a deficiency of about 500,000 gross tonnage to meet the needs of our Navy as it stands to-day and without allowing for growth. It may be claimed in this connection that our merchant marine has grown so rapidly in the past year that we are justified in relying on it to keep pace with our naval requirements, so that we could draw from it what we want in case of war. The increase in our merchant marine in the past year is due to the liberal act passed by the Congress after the European war broke out, known as the ship registry bill, which authorizes any one to register a foreign-built ship under our flag by complying with the conditions of the act. While the German cruisers were in the Atlantic and Pacific a considerable number of vessels of English and other registry, many of which were owned by American citizens, were transferred to the American flag. We have no assurance, however, that these ships will remain under American registry after peace is restored in Europe. Even if they do, their crews are composed mostly of foreigners who are under no obligation to fight for our flag and are not likely to volunteer to do so in an emergency. It is, of course, out of the question to rely upon citizens of foreign powers to fight our battles upon the high seas. We must not rely upon foreign ships and foreign crews which may have taken the benefits of American registry merely for safety and insurance against attack while the war is raging in Europe and which may desert us as soon as that danger is past.

THE GOVERNMENT SHOULD ACT AT ONCE.

As a part of our naval program of preparedness we should provide every element of a well equipped, highly efficient, and perfectly balanced naval fleet and organization. The ships, both of the fighting line and of the auxiliary line, should be the best that American skill and science can produce, and the men who are to fight the battleships and operate the auxiliaries must be trained American seamen, imbued with our national spirit and knowing no allegiance except to the United States. So vital is this that, whereas a few years ago we permitted foreigners to enlist in our Navy, the law now compels the enlistment of American citizens only.

Every part of a highly developed Navy and every unit of the human organization should work in thorough reciprocation, like the parts of a perfect locomotive, enabling it to develop the highest power, the greatest speed, and the maximum of efficiency in all circumstances and under all conditions.

Our neglect to provide in the past the necessary naval auxiliaries gives us, however, one great advantage. By building them now we can develop a type that will be better than anything the world has yet produced. We can construct a more efficient arm of this character than any nation on earth possesses, and while we are conserving the national safety by increasing the power of our national fighting machine, we can at the same time put into commerce a class of ships which will give to our people in the expansion of our foreign trade advantages over every competitor. We can do this because the merchant marines of our leading rivals are, in most respects, composed of old ships, with obsolete equipment. We can build new ships of modern equipment, constructed with special reference to Navy uses, commercial requirements, and economical operation, that will be superior to anything that naval and marine architecture have yet turned out. As I said before, this is the one advantage of our past neglect, but that advantage will be lost if the calamity of war should overtake us before we can create our well-balanced Navy, with its complement of merchant marine naval auxiliaries.

Up to this point I think we can all agree. I believe there is no citizen, however partisan he may be, or whatever his views may be about a merchant marine, who will not agree that the Government should provide the necessary auxiliaries for the Navy just as it should provide the battleships and other essential fighting units of the Navy. Certainly we can not afford to rely on private capital to create these naval auxiliaries. We can not sleep any longer—we must prepare.

The Government should proceed immediately with the construction of these auxiliaries as a part of the program of preparedness. The vessels should be designed by the best marine and naval architects in this country. They should be passed upon and approved by the Navy Department, and the contracts for their construction should be let to American shipyards to the extent that such shipyards can build them, and our own navy yards should construct as many of these vessels as their capacity will permit. I wish to emphasize the importance of building these ships in American shipyards and in our navy yards. It is just as important a part of naval preparedness to have adequate shipyards for the purpose of constructing and repairing vessels as it is to have the vessels themselves and the men to man them. We must pursue an intelligent system of building up our shipyards and our navy yards as a part of the vital problem of naval preparedness.

NAVAL AUXILIARY MERCHANT VESSELS TO EXPAND OUR FOREIGN COMMERCE.

When we have built the 500,000 gross tonnage of merchant vessels as naval auxiliaries, the question is, What shall we do with them? They will not be required for actual service unless a war breaks out. There are two methods of dealing with them. First, tie them up in our harbors and allow them to remain idle and rot; or, second, operate them under some intelligent plan for the protection and expansion of our foreign commerce.

Of course, no rational person would advocate that these vessels be kept idle in our harbors, awaiting the uncertain eventuality of war. The interest charge alone would be a large and continuing expense. In a comparatively few years the vessels would go to ruin and the whole investment would be lost.

If, on the other hand, we operate these ships under some sensible plan and expand our foreign trade, we will do the most intelligent possible thing from every standpoint. The operation of the ships will keep them in fit condition to respond to the immediate call of the Navy in case of need, and we shall, at the same time, create a large corps of trained American officers and seamen, and the direct earnings may show a handsome return on the investment. Even if a loss is incurred, it will be a small price to pay for preparedness and the national safety. While thus preserving the ships and creating a highly efficient naval reserve, we can enlarge our foreign trade and carry our influence, both financial and commercial, into the open markets of the world. Is not this the intelligent thing to do? Can there be any difference of opinion on this point? If not, then all of us, whether partisans or not, can travel the same road this far.

I imagine also that there can be no difference of opinion as to the desirability of increasing our foreign trade. I believe that we shall all agree that the prosperity of this country depends upon the maintenance and expansion of our foreign commerce. What could more clearly prove this than the experience through which the Nation has recently passed and is now passing? When the European war broke out the first result was a complete disorganization of exchange and international credits, a dislocation of all foreign commerce and its almost complete stoppage for several months. The effect upon our internal situation was immediate and dangerous. In all of our leading ports there was great congestion of grain, cotton, and supplies of all kinds, with corresponding injury and depression throughout the country. This was followed by a period of gradual loosening up, of restoration of confidence and credits, until now the orders from foreign nations have so stimulated our foreign trade that our industries are running full time and there is a demand for all of our surplus products, particularly the products of the farms. Our only difficulty is a lack of ship tonnage, which is preventing our exports from being greater than they are.

SOUTH AMERICAN MARKET.

If the volume of our foreign trade should continue to be even as great as now, it would mean a long period of unusual prosperity in this country, but when peace is restored in Europe there will be a decreased demand for many of our products. It will be necessary to substitute markets which are now available and practically untouched by us if we are to preserve our prosperity unchecked. I refer to the markets of South America and the Orient.

What are the South American markets worth? The latest available figures show that the total yearly imports of South America from Great Britain, Belgium, France, Austria-Hungary, Germany, Italy, and Russia were $677,767,815. Austria-Hungary and Germany alone exported to South America annually $197,000,000. This great trade is open to us. The total United States exports to these countries for the last year of available statistics were only $166,598,949. I have no figures on the Orient.

If we take these markets while we have the chance, we can establish unparalleled prosperity in this country. We have, by reason of the Federal reserve system, so organized and consolidated our credit resources that we now have the financial strength to extend our commerce wherever it will go. Our one and indispensable need is ships—merchant ships of American registry. We can get them by creating the necessary naval auxiliaries.

AMERICAN DEPENDENCE UPON FOREIGN SHIPS.

Why is it necessary to our commerce to have a merchant marine under the American flag?

This is an economic question of primary importance. We are one of the greatest industrial and producing nations on earth. We must have foreign markets to absorb our surplus products. Without them we shall have stagnation and depression and idleness and want. To secure our share of the open markets, such as Central and South America and the Orient, we must compete with other leading industrial nations of the world, such as Great Britain, Germany, and France. If we have to depend on their ships to carry our goods in competition with them to South America and the Orient, they will naturally favor British or German or French merchants, as the case may be, both in rates and service, as against American merchants. We have no control over or power to regulate these foreign steamship lines, or to prevent them from discriminating against our interests. If we have

American ships, their first interest is to build up and extend American business, just as the first interest of the British ships is to build up British business, and the German ships to build up German business. After the European war is ended competition for the open markets of the world will be more intense than ever. We must have every facility that our competitors have if we are to get an even chance.

Let me illustrate: Suppose a merchant in Buenos Aires wants to place a large order for cotton goods or steel rails. He gets quotations in England, Germany, and the United States. The English manufacturer has an English steamship line to carry his product to Buenos Aires, and the German manufacturer has the same advantage in a German line. But the United States manufacturer has only a British or German ship to carry his product to Buenos Aires. Don't you suppose that the British and German steamship companies are going to give the best rates and service to the British and German manufacturers, instead of the American? Of course they are. Their first interest is in building up their own countries. But if the American manufacturer has an American steamship line to give him a fair show in rates and service, he may get the business.

Let us bring the point nearer home. Suppose two men were running competitive grocery stores in Indianapolis, and that one of them had a fast automobile delivery service and the other had to use the automobile service of his competitor for the delivery of his goods. How much business would the grocer who has no delivery service of his own do? Not much. His competitor with the automobile service would soon put him out of business.

This is not all.

Having few American ships in the foreign trade we are dependent to-day on the flag of Great Britain for the carriage of the greatest part of our commerce. She is at war. She must use her ships for her own necessities first, as a matter of course. She can not supply us with the ships we need for our own commerce, and the longer the war lasts the less she can do for us. The German flag, our other chief reliance, has disappeared from the seas. If Great Britain's control of the sea should be destroyed or seriously impaired it would react disastrously on our trade and general situation. As an economic question, are we justified in relying upon the ships of any foreign flag to protect our vital interests, especially when the nation upon whose ships we depend is, or may be, engaged in great wars?

Consider a more serious phase of the matter. Suppose that a war between Great Britain and the United States should ever break out. Her ships would be withdrawn and we would be involved in immeasurable disaster.

The risk is too great for any first-class power to take. We have no right to hazard the fortunes and the welfare and the safety of our country on such a chance. Already we are too close to the awful European conflict, although we are at peace, thank God, with every belligerent. Let us secure our safety, physical and economic, by doing what is necessary to be done, and what we are so able financially and otherwise to do.

We are, moreover, paying to foreign steamship lines more than $300,000,000 per year, when, by having our own ships, we could pay them for this service, build up a merchant marine which will profit our people in time of peace and serve our country in time of war.

OPERATION OF A NAVAL AUXILIARY MERCHANT MARINE.

The question now arises as to how these merchant marine naval auxiliaries can be operated with the greatest benefit to the country. It must be borne in mind that a really useful naval auxiliary should consist of fast passenger and cargo ships, as well as ordinary cargo ships. The combined passenger and cargo ships would be suitable for operation on specific routes, such, for instance, as lines running—

To Brazil, Uruguay, and Argentina, and touching at the important ports of those countries.

To Colombia, Ecuador, Peru, and Chile, and along the west coast of South America.

To the Orient, touching at Honolulu and the leading ports in Japan, China, and the Philippines.

We should not, however, establish regular steamship lines where sufficient and satisfactory service has been established by American companies operating ships under American registry.

The ordinary cargo ships could be used in any and all parts of the world, and in such manner as will be most beneficial to the commerce of the country.

To bring about these results a shipping board should be created, consisting of the Secretary of the Navy and the Secretary of Commerce as members ex officio, and three members to be selected by the President and confirmed by the Senate. I suggest that the Secretary of the Navy be a member of the board, instead of the Secretary of the Treasury, as proposed in the shipping bill introduced in the last Congress, because, at that time, the necessity for naval preparedness was not so apparent as it is now. Naval auxiliaries and naval reserves make cooperation and coordination with the Navy essential, and with the Secretary of the Navy on the board this will be secured. The Secretary of Commerce, whose department has its hand constantly upon the business pulse of the Nation, should obviously be a member of the board. Congress should appropriate and put into the hands of this board a fund of $50,000,000. This would be sufficient to create a naval auxiliary of suitable merchant ships of from 400,000 to 500,000 gross tons. This board should have authority to establish, as quickly as possible, steamship lines to the east and west coasts of South America and to the Orient. In my judgment it is highly important that such lines shall be established and operated under governmental control, so that there may be a guarantee of sufficient, regular, and reliable service, and at such rates for passengers and freight as will put our farmers, producers, and manufacturers on a competitive basis with their rivals in the world's trade. What the American producer and manufacturer needs more than anything else to enable him to capture his share of the world's markets is this kind of steamship service, a service which he knows he can depend on, and rates which he knows will enable him to successfully compete with his foreign rivals; that is, rates and terms *at least* as favorable as those enjoyed by his foreign rivals.

In order to make this service most satisfactory, the shipping board should have authority to organize a corporation or corporations and to subscribe to the capital stock thereof in whole or in part, as the board may determine will most effectively carry out the objects in view. The board should have authority to vote the stock belonging to the United States for the election of directors. These directors will, in turn, choose the officers and employees of the corporation. By this means they will be removed from political influences, just as the Panama Railroad Co. and Steamship Line, in which the Government is the sole stockholder, is unaffected by political influences.

Another great advantage in having a corporation or corporations in which the Government is a stockholder instead of the Government itself operating these lines is this: The corporation can sue and be sued, and a shipper will have no difficulty in enforcing his remedy or claim against the corporation. If the Government directly operated steamship lines, shippers would be embarrassed in the enforcement of their claims. They would have to sue in the Court of Claims at Washington, and, after judgment, secure an act of Congress before payment could be made. In commercial undertakings it is important that legal remedies shall be prompt and effective. Moreover, the operation of the ships through the agency of a corporation such as I have described will result in securing the most efficient management, and the methods will be as simple and direct as those of rival lines operating under foreign flags. These lines operated by a corporation or corporations under the general supervision of the shipping board will give confidence to business men, not only in the United States, but in all those countries of South America and the Orient with which they will connect.

As a result of the Pan American Financial Conference held in Washington last May, in which 18 Central and South American nations participated, I am confident that those countries to which such lines run will extend every possible facility in the form of docks, terminals, and favoring laws. Certain of those nations have indicated their eagerness to cooperate with our Government in the most effective manner for the purpose of improving trade and commercial relations between their countries and ours.

As to the distinctively cargo ships to which I have referred, and which would constitute a large and important part of the proposed naval auxiliary, I think that a different form of treatment could be adopted with great advantage to our commerce. The shipping board should have the power to lease or charter these ships to responsible individuals, firms, or corporations under such conditions as the board may deem best, but in no event at less than 3 per cent on the cost of construction and 4 per cent for depreciation. The length of such leases or charters and the general conditions connected therewith should be left to the discretion of the shipping board.

This would put in the hands of the board a mobile fleet of vessels which could be used in any part of the world and under conditions that would enable them to meet any emergency that might arise anywhere with respect to our commerce.

Let us consider such a situation as now confronts the Northwest. The lumber and grain interests in Washington, Oregon, and throughout the Northwest have suffered severely for lack of shipping facilities. At certain seasons of the year the South requires a large number of ships to transport its cotton to Europe. In such circumstances the shipping board could throw a fleet of steamers into the leading ports of the Northwest and South to take care of the seasonal demands and protect shippers and business men in those sections of the country against loss and injury and the excessive and extortionate charges from which they have too frequently suffered.

I do not mean to say that the power of the shipping board should be limited to leasing ships. The board should also have authority to operate them in commerce whenever suitable lessees can not be found, or whenever in its judgment the interests of our commerce would be best subserved by such direct operation through the medium of a corporation or corporations as I have already described.

Under this plan these merchant marine naval auxiliaries could be made to set the pace in merchant-marine construction and operation. They could be used as a school for demonstration and for the training of a naval reserve along with the highly utilitarian services they would perform. We could prove the falsity of the claim that ships can not be operated under the American flag at a profit. With modern ships of superior construction and economical operation and with American seamen of proved efficiency—because the genuine American seaman is the most efficient seaman—I know that we can beat the world. We have done it on the Great Lakes and we can do it on the high seas. The Department of Agriculture and the Department of Commerce have demonstration schools or agencies which have rendered invaluable service to our farmers, manufacturers, and business men, and there is every reason to believe that the shipping board could render highly valuable services in the shipping field. These ships would constitute the very backbone of an American merchant marine and would restore the American flag to the high seas. They would also constitute an effective protection for the commerce of this country, to say nothing of the vital service they would perform for the Nation in time of war.

Under the stimulation of such a plan, our shipyards would get additional business, not only for the construction of vessels but also for their maintenance and repair. As I have before stated, we would, incidentally, be developing the shipyard facilities which are an essential part of the program for preparedness. The orders for these vessels need not be limited to shipyards on the Atlantic and Pacific coasts. There is no reason why our shipyards along the Great Lakes can not be utilized for the same purpose; why they can not be employed during the dull winter months in turning out the parts for these vessels, which could be transported in sections through the Great Lakes and the canals to the Atlantic Ocean and assembled there. This would increase our shipyard facilities and give employment to many of our workmen in those parts of the country where they would otherwise be idle.

NEED FOR REGULATION OF OCEAN CARRIERS.

The shipping board should have power to reform our navigation rules and regulations; to study shipping problems and recommend to the Congress the necessary legislation to encourage and develop a great merchant marine under the American flag.

The time has come when the Congress should consider the creation of some instrumentality for the regulation of merchant marine companies. As it stands to-day, no ocean transportation company is subject to the least regulation or control by the Government. Marine companies operate their ships, change their sailings, or discontinue the operation of their ships when and as they please, and regardless of the rights of shippers. They fix rates and change rates without notice, arbitrarily and in total disregard of the rights of shippers. They determine what cargo they will or will not carry and discriminate in favor of one shipper against another.

THE PACIFIC MAIL.

When we consider the effective laws which have been passed by the National Government and the various States to regulate common carriers, it is amazing that the steamship companies which are common carriers on the high seas have been allowed to go all these years without regulation or control. What could argue more strongly in favor of governmental regulation of ocean carriers than the recent action of the Pacific Mail Steamship Co.? Here is a company which has operated a service between San Francisco and the Orient for many years. Our business men, manufacturers, and producers have built up great trade interests with the Orient upon the faith of this service. All of a sudden, and without adequate notice, and with utter indifference to the injuries that might be done to shippers and the interests of this country, the Pacific Mail Steamship Co. sells its ships and announces that it will discontinue its service. Suppose that the directors of the Union Pacific Railroad Co. should decide that they could make more money for their stockholders by tearing up the rails of their tracks and selling them and their locomotives and cars to some belligerent government, because that government is willing in time of war to pay fabulous prices therefor, what do you suppose the indignant people along the line of this railroad would do to the officers and directors of that company? No common carrier on land would be permitted to do such an arbitrary and injurious thing as our common carriers on the high seas may at any time do with impunity.

The Pacific Mail people claim that the passage of the seamen's bill forced them to discontinue business. I am told that the seamen's bill was not the mainspring for the transfer of the Pacific Mail vessels. The Panama Canal act, which denied railroads owning competitive steamship lines the right to operate them through the canal, and the fact that present abnormal rates for cargo space on the Atlantic, which made it possible for the Pacific Mail to sell its ships at more than their real value, was, I understand, the true cause of their sale.

It is an extraordinary fact, however, that the Pacific Mail Steamship Co. should retire from business at a time when ocean freight rates are the highest and most remunerative in the history of Pacific transportation. When the European war broke out, the normal rate for "weight and measurement freight" between the Pacific coast and the Orient was $5 per ton. The present rate is $15 per ton, an increase of 200 per cent. More freight is offered at these figures than steamship companies can take. Recently one of the largest American manufacturers offered 80,000 tons of this character of freight for shipment from the Pacific Coast to the Orient at $15 per ton and was able to secure accommodations for only 40,000 tons. For the remainder the steamship companies could promise no space earlier than six to eight months. All freight rates on the Pacific have been greatly increased, and the steamship companies are earning immense profits. Both the Pacific Mail and the Robert Dollar Co. could afford, if necessary, to employ nothing but American seamen in the place of Asiatic seamen and still make far greater profits at the high rates they are now receiving on the business available to them than they could make with Asiatic seamen and the normal rates prevailing before the European war. On the single order of 80,000 tons, to which I have referred, the increased revenue to the steamship companies in the Pacific over normal rates is $800,000.

In the face of these facts, it is difficult to understand the action of the Pacific Mail Steamship Co. But I am not concerned with their motives; they are immaterial to me. I am merely concerned with the injurious effects of their action upon the business interests and the welfare of the country. Certain it is that in attributing the transfer to the seamen's bill the Pacific Mail people had an opportunity to excuse themselves in the eyes of the public for an action which otherwise would have been strongly denounced. But if the Government has passed any laws which make it unprofitable for them to operate their ships in the Pacific, they might properly say that they can not and ought not to be compelled to maintain their service at a loss. Let us grant that. I do not believe that any corporation or individual should be compelled by law to do business at a loss. The Pacific Mail has the right under the law to retire from business if it wants to. It is certain, however, that adequate steamship facilities between the Pacific coast and the Orient are vital to the interests of our country. Suppose they can not be maintained except at a loss. Must we then do without these facilities? I say no. In those circumstances such service should be provided under our flag, and if private capital can not afford to provide it because it involves a loss, then the Government should provide it and take the loss for the general welfare of all the people and for the protection of our trade and prosperity, especially when the vessels for such service become a part of the naval auxiliaries essential to the national defense. If the shipping bill had been passed in the last Congress the Pacific Mail ships would not have been transferred to the Atlantic. The shipping board would undoubtedly have bought those ships and kept them in the Pacific trade, where they are needed, and the interests of the Pacific Coast would have been saved from injury.

RAILROAD-STEAMSHIP THROUGH BILLS OF LADING.

The shipping board should also have the power, acting in conjunction with the Interstate Commerce Commission, to arrange for the issuance of through bills of lading between our railroad lines and steamship lines operating under the American flag in the foreign trade, and to provide the means whereby special through rates can be made between our railroads and steamship lines to enable them to meet the competition of foreign carriers in the open markets of the world. I am sure that plans and regulations of this character, if properly worked out, would give our shippers and business men the opportunity of largely increasing their business in foreign markets by putting them in better position to meet competition.

Is there anything unreasonable in this plan? On the contrary, is it not a practical plan which promises to give early results? Up to the present time our antagonists have offered nothing but criticism. They roundly denounced the plan proposed at the last Congress for the creation of a merchant marine, but they have never offered a single practical or constructive suggestion as a substitute for that plan. The country is not satisfied with mere criticism of a practical plan. It demands that this important problem be solved in the interest of the Nation, and expects that those who criticize will present a practical substitute if they want a hearing. Let our opponents present constructive suggestions.

DEFEAT OF SHIPPING BILL COSTLY TO AMERICAN BUSINESS.

The shipping bill introduced in the last Congress is different in some details from the plan here suggested, but that bill was introduced in September, 1914, just after the great European war had begun, when it was necessary to move swiftly for the protection of American business interests. Even that measure would have been of inestimable service to the country had it passed, because there was a superabundance of purchasable ship tonnage which could have been bought at that time and used with immense benefit to American commerce during the past year.

American business has paid dearly for the defeat of that measure. I am sure that the increased and extortionate ocean freight rates paid by our defenseless producers and shippers in the past 12 months have exceeded several times the $40,000,000 which the shipping bill authorized the Government to expend on merchant vessels. But this is only a small part of the injury. Grave losses have been sustained by our business men because they could not ship at all. Take lumber and manufactures of wood as an example. For the fiscal year 1914 our exports of these products were, in round numbers, $99,000,000; for the fiscal year 1915 they were, in round numbers, $48,000,000, a decline of $51,000,000. This was due almost entirely to the lack of ships and prohibitory ocean rates. Take coal as another instance. In the face of the most extraordinary demand for our coal from Spain, Italy, France, Argentina, and South America, our total exports of coal for the fiscal year 1915 were, in round numbers, $56,000,000, against $60,000,000 for 1914—showing a decline of $4,000,000 in the face of the greatest demand in our history for our coal for foreign consumption. France alone needs 40,000,000 tons of coal the next year. We could supply it if we had the vessels. Think of the stimulus to our coal and lumber industries and the profitable employment it would give to labor if we had supplied the ships to secure this foreign trade for our producers. I could multiply instances, but it is unnecessary.

INTERESTS OF FARMERS AND WORKINGMEN.

No classes of our people are more vitally concerned in adequate steamship lines to deliver our products to foreign markets than our farmers and laboring men. Why?

Let us consider the farmer first. Our farmers have always produced more than they could sell in our home markets. This is notably true of grain and cotton. We depend absolutely upon foreign markets for the disposition of our farm surplus. To show you the magnitude and importance of our foreign trade in farm products, I need only call your attention to the fact that for the fiscal year 1915 our total exports were $2,716,178,465, of which the total crude and manufactured farm products represented $1,616,687,466, or more than 59 per cent of our total exports. If steamship facilities are inadequate, the farmer has added difficulty if he is not to a large extent actually prevented from getting his surplus products to foreign markets. Moreover, he is a great sufferer from exorbitant freight rates.

For the past year, because of the lack of American ships and the scarcity of ocean tonnage generally, ocean freights in the Atlantic have been extortionately high. The normal rate of 4 cents per bushel for grain from New York to Liverpool has been increased to 40 cents per bushel. I do not have to argue with any intelligent farmer that he gets less for his grain on the farm when it costs 40 cents per bushel to ship it from New York to Liverpool than when it costs only 4 cents per bushel for the same service. The cotton producer in the South has suffered in greater degree. Ocean freight rates on cotton have gone as high as $15 per bale from Galveston to Europe, as against $2.50 per bale prior to the European war.

Our farmers, because they produce the bulk of our wealth, as well as the bulk of our exports, ought to be protected against extortionate ocean freight rates, and ought to have the assurance of sufficient steamship service and reasonable rates to secure fair treatment and enable them at all times to compete in the open markets with their rivals in the other great farm producing regions of the world.

How is the laboring man affected? Labor on the farm is interested for the reasons already given about the farmer, but the laboring man in our great industrial plants is likewise deeply concerned in this subject. We exported in the fiscal year 1915 manufactured products, other than farm products, $843,699,562, or 31 per cent of our total export trade for that year. As our manufacturers are put in position to compete in the open markets of the world with their great industrial rivals of other nations, labor will be employed in this country more regularly and at higher wages. Wide fluctuations in industrial conditions hurt the laboring man more than any other because it frequently forces upon him periods of idleness. If our manufacturers are put in position to take their share of the world's markets, as they can be through the creation of a naval auxiliary merchant marine, it will help to bring about stable conditions in the great industries of this country, with steady and remunerative employment for labor and stabilized prosperity for our manufacturers.

In 1907 Mr. Gallinger, the distinguished Senator from New Hampshire, and leader of the Republican Party in the last Senate, said:

> We need American ocean mail lines to South America and other distant markets, and we shall have them. We shall have an American merchant marine and a naval reserve. We shall not go on forever as we are going now, paying $200,000,000 every year in freight, mail, and passenger money to the shipowners of foreign nations, our rivals in trade and possible enemies in war.

How much more imperative and vital now is the need which Senator Gallinger so eloquently and accurately described eight years ago.

SUBSIDIES.

What is the real fight in this merchant marine controversy? It is a fight for subsidies. What are subsidies? They are gifts from the United States Treasury to favored corporations, firms, and individuals who operate ships. Why should we give away millions of dollars of the people's money each year to favored shipowners over whose rates and service we have no control? Wouldn't it be more sensible for the Government to spend these millions in building up a splendid naval auxiliary merchant marine which can be controlled and operated in the interest of all the people? If we adopted the policy of subsidies, wouldn't corporations and individuals with the strongest and longest pull get most of the money, as they always have done when free money has been distributed by the Treasury in the "good old days of special privileges"? Every shipowner and every ship monopolist wants subsidies. Of course they do. They would profit by them, and they are going to make a desperate fight for them in the next Congress.

But they can't succeed, because no Democratic Congress will pass a ship subsidy bill and no Democratic President will approve one. The Democratic Party is in control of the Government and is pledged by its platform and record against subsidies. Why, then, contend for the impossible? Why not accept the only practical plan—the creation by the Government of a naval auxiliary merchant marine with the money the subsidists want the Government to give to them? The Democratic Party declared in its platform for a merchant marine created by constitutional methods. To build a naval auxiliary and use it to create a naval reserve of officers and men and to build up American commerce is a constitutional method.

GOVERNMENT IN BUSINESS.

A vigorous and persistent attempt has been made to prejudice the country against a practical measure for the establishment of a merchant marine naval auxiliary on the ground that it would put the Government in the shipping business; that it is socialistic, etc. The proposition is not to put the Government directly in the shipping business, but to let it take stock in a corporation or corporations with power to engage in the shipping business.

The first Congress which convened after the adoption of the Federal Constitution recognized the right of the Government to subscribe to stock in a private corporation when its business is impressed with a public service. My illustrious predecessor, Alexander Hamilton, proposed the organization of the first United States Bank with a capital of $10,000,000. In 1791 the Congress authorized it and subscribed $2,000,000, or 20 per cent, of the capital stock. Federalists and Republicans alike voted for it, and President Washington approved it. When the second United States Bank was incorporated in 1816, Democrats and Federalists alike voted for it, and President Madison approved it. The second bank had a capital of $35,000,000 and the United States subscribed to $7,000,000, or 20 per cent of its capital stock.

The next notable instance of the Government subscribing to the capital stock of a corporation is that of the Panama Railroad Co., which also operates the Panama Steamship Line between New York and Panama. Here again is a corporation whose business is impressed with a public service. Republican Senators and Congressmen voted almost solidly for this measure, and President Roosevelt approved it. The Government of the United States owns every dollar of the Panama Railroad Co. stock. The Panama Railroad and steamships have been operated for the past 13 years by this private corporation in which the United States is sole stockholder, under the supervision of the War Department, and the ships have always been operated at a profit. Political influences or activity have never interfered with the conduct of that company's business. Senators Burton, Gallinger, and Lodge, and many others who have opposed the

Government taking stock in a steamship company, voted for the purchase of the stock of the Panama Railroad Co. and Steamship Line. It is somewhat amusing to hear Republican Senators strongly denouncing the idea of the Government engaging in "any business that will interfere with private enterprise" in the face of the record they have made in Congress. Who put the United States in the express business and almost destroyed all of the private express companies in the country? The Republican party. It was during Mr. Taft's administration that the Republicans championed the parcel post. It is true that the Democrats helped them put it through, but it does not lie in the mouths of the Republicans to say that they are opposed to the Government engaging in private business in the light of this record. It was the Republicans, also, during Mr. Taft's administration, who put the Government in the savings-bank business by establishing the postal savings banks. I remember when bankers throughout the country were strenuously opposing the postal savings bill because they urged that the Government would become a competitor in the savings-bank field.

THE FEDERAL RESERVE ACT.

Let me instance also the Federal reserve act. There is no piece of legislation in half a century which has produced already such pronounced benefits to the American people as this great measure. Bankers and politicians throughout the country opposed this bill because they said it put the Government in the banking business; that it is "socialistic." The American Bankers' Association, at its annual meeting in Boston in October, 1913, about two months before this bill was passed, formally denounced it by resolution as socialistic, etc. Do you know why the Federal reserve system was successfully established? It was because of a provision in the bill which authorized the United States to take all the stock in Federal reserve banks which the national banks failed to take. Doubtless you will recall that many banks threatened, while the Federal reserve act was under discussion, to withdraw from the national banking system if it became a law. It is quite likely that if the Government had not protected itself by providing that the United States might subscribe to the stock of the Federal reserve banks, a formidable movement among the national banks of the country to withdraw from the system might have been successfully carried out. In that event we would have had no Federal reserve system. But the fact that the Government would, if necessary, provide the capital to establish the Federal reserve banks made the banks realize the futility of further opposition. As a result we have to-day 12 Federal reserve banks which have consolidated and organized our credit system and resources on such a basis that we are the strongest nation financially upon the face of the earth.

I believe that there is no intelligent banker, business man, or citizen of this country, who understands the Federal reserve system and its workings, who does not thank God for the great law which created that system, whether it be socialistic or whether it puts the Government into the banking business or not.

Since the beginning of the Republic, Federalists, Democrats, Republicans, Whigs, and Progressives have voted for and sustained the principle that the United States may subscribe to the stock of quasi-public corporations.

SENATOR WEEKS PROPOSED TO PUT THE GOVERNMENT IN SHIPPING BUSINESS.

Can there be any question as to the necessity for an American merchant marine? I believe there is no difference of opinion on this score. Chambers of commerce from one end of the country to the other have passed resolutions reciting the necessity for an American merchant marine. Business men and politicians and statesmen of all shades of opinion are in agreement as to its necessity. Even our Republican friends in Congress admit the necessity. On March 26, 1914, Senator Weeks prepared and submitted to the Senate a resolution containing the following preamble:

> Whereas it is desirable to develop and extend commercial relations between the United States and the countries of South America by the establishment of direct lines of communication for carrying the United States mails, for the transportation of passengers and freight; and
>
> Whereas private capital has not engaged in this service to a sufficient extent to furnish facilities comparable to those enjoyed by the people of other countries having trade relations with South America; therefore it is
>
> *Resolved*, That the Secretary of the Navy be authorized to prepare a plan for the operation of some of the Navy cruisers between New York and New Orleans, the city of Valparaiso, Chile, and intermediate points.

And subsequently Mr. Weeks presented to the Senate a bill to carry out his plan, in which the Secretary of the Navy was authorized "to establish one or more Navy mail lines by employing such vessels of the Navy as in his discretion are available, etc., for the purpose of establishing and maintaining regular communication between the east or west coast or both coasts of the United States and either or both coasts of South America and between the United States and the countries of Europe." The Secretary of the Navy was also authorized to prescribe regulations for the operation of such vessels and to fix the rate or rates at which mail, passengers, and freight could be carried.

Can you imagine a more direct method of putting the Government into the shipping business than to transform our battleships and cruisers and other naval vessels into merchant ships, operating them through and by virtue of the direct sovereignty of the United States Government, and having the Secretary of the Navy engage in the shipping business, fix the rates for freight and passengers, sue shippers for failure to pay their bills, and do all those things which the steamship owner in private enterprise would have to do to carry on the business? Who voted to put the Government directly into the shipping business in this preposterously expensive, unwise, and ineffective manner? Senators Weeks and Gallinger made speeches for the bill and Republican Senators and Democratic Senators voted for the bill. It was passed without division.

The Secretary of the Navy's report shows that some of the cruisers which Senator Weeks wanted us to operate to Europe while the war is in progress, and to the east and west coasts of South America, could carry only 17 to 20 passengers, the United States mails, and about 150 tons each of express freight. The Secretary of the Navy stated that it would be a very expensive service. It would have been impossible for these ships to render either a sufficient and satisfactory service or to have conducted the business with the remotest chance of making a profit. All of the Republican Senators to whom I have referred voted for this bill on the 3d of August, 1914, after the European war had broken out.

LACK OF SHIPS IN SOUTH AMERICAN TRADE.

In his speech on the subject, Senator Weeks said that "South American mails are sent at long and sometimes irregular intervals, and all American mails south of the Equator are carried in vessels sailing under a foreign flag"; that "the service to South America is very slow and this, it may be easily assumed, militates against the development of our trade with South America." The Senator also said:

> We are in the position of having spent $400,000,000 in the building of a canal. one of the reasons for doing so being that it would aid in the extension of our foreign trade; but, as far as I know, there are no American steamers prepared to undertake this service.

Mr. Gallinger said that he would vote for the measure, although he thought it a "makeshift"; that the question of steamship service to South America had been agitated a great deal; that he had agitated it; Senator Root had agitated it; the President of the United States had agitated it; Republican and Democratic statesmen had agitated it; yet he said "We are without a line from either the Gulf, the Pacific, or the Atlantic coast of the United States to South America." He said that "the bill proposes to put in service a few inadequate ships if we can spare them from other service—ships that will carry a handful of passengers and a little freight"; and then he exclaims:

> Slow ships, I take it, almost every one of them, and we are to be put in competition with the great countries of the world, with their magnificent steamships, by calling together this conglomeration of third-class or fourth-class ships for this service. I do not oppose it, because I think if we can do anything to give us a chance in the markets of South and Central America we ought to do it.

Senator Gallinger also called attention to speeches he had made in the Senate, and said:

> I am gratified to observe that in those speeches, among other things, I called attention to two possible complications which might arise if we did not have an adequate merchant marine. One was that, in the event of a great European war, we would not have any ships to transport the products of our farms and our factories. Those are the words that I used; that is exactly the situation which confronts us at the moment. The other suggestion I made was, that *in the event of a war between a great foreign nation and our nation we would have no adequate auxiliary ships to supplement our battleship fleet, and that is exactly the situation which exists to-day.*

"BOOM IN AMERICAN TRADE"—SENATOR GALLINGER.

Senator Gallinger also remarked:

> *If we only had adequate steamship lines between the United States and South America, there would be a big boom in American trade which would astonish not only our own people but the world.*

These are true and prophetic words and do credit to the distinguished Senator from New Hampshire.

I will not tire you with further quotations. I merely wish to commend these Republican Senators for their intelligent conception of the situation at that time and for their expressed willingness to help solve a very pressing problem—a problem which is still pressing and unsolved. If we needed ships so badly before the European war broke out, as they declared we did, how much more badly and sadly have we needed them since. I do not know what made these gentlemen change their position. In the fight that subsequently developed I deeply regretted that partisanism appeared to override the merits of the great question, and the "boom in American trade which would astonish not only our own people but the world," as Senator Gallinger aptly described it, if we established "adequate steamship lines between the United States and South America," has never matured, because Senator Gallinger and his colleagues prevented the establishment of "adequate steamship lines," as proposed by the administration.

EFFORTS TO PROVIDE SHIPS FOR AMERICAN COMMERCE.

Just one month after Mr. Weeks's bill to put the Navy in the shipping business had passed in the Senate Judge Alexander, chairman of the House Committee on Merchant Marine and Fisheries, introduced a bill authorizing the Government to take stock in a shipping corporation, just as the Government owns the stock of the Panama Railroad & Steamship Corporation, and to build or purchase some suitable steamships and put them into service between the leading ports of the United States and the leading ports of South America.

Now, these merchant ships, under the Alexander bill, would have been adequate for the service. Instead of carrying only 17 to 20 passengers and 150 tons of express freight, they would have been able to carry a large number of passengers and a great cargo of general freight, which would have made them not only highly useful to our commerce but would have made their operation profitable. Such a service as that proposed by the Alexander bill would not have been a "makeshift," as Senator Gallinger described the Weeks bill, and the service proposed by the Alexander bill would have caused, as Senator Gallinger described it, a "boom in American trade which would astonish not only our own people but the world." Any number of desirable ships could have been bought at that time, and at extremely reasonable prices if the Alexander bill had been promptly passed, and it would not have been necessary, nor was it the intention, to purchase the ships belonging to any belligerent power tied up in the harbors or waters of the United States. In their eagerness to protect the vital interests of the country and to help business, then suffering from scarcity of ships and extortionate ocean freight rates—which have been increased since the outbreak of the European war all the way from normal to 1,600 per cent—the Democratic House passed the Weeks bill to put Navy vessels into commerce, with an amendment authorizing the creation of a shipping board and the acquisition of a large tonnage of suitable merchant vessels, in addition to the Navy vessels, and sent the Weeks bill, so amended, back to the Senate. With extraordinary inconsistency, the Republican Senators, after voting to put the Government into the steamship business by operating an inadequate service with naval vessels, fought like tigers against the passage of the Weeks bill, as amended by the Alexander bill, and prevented the enactment of the only practical measure proposed to solve the pressing ocean transportation problem then, and until this time, confronting the Nation.

PAN AMERICAN FINANCIAL CONFERENCE.

The Congress authorized by resolution the holding of a Pan American financial conference in the city of Washington, and appropriated $50,000 for the purpose of paying its expenses and entertaining, as the guests of the Nation, the delegates of the eighteen Latin-American countries which were represented in that conference. The Secretary of the Treasury, under the direction of the resolution, represented this Government in this conference, and by authority of the Congress he invited leading bankers and business men of the United States to participate in the proceedings. By unanimous vote of the delegates representing all the countries of Central and South America, and of the one hundred or more leading bankers and business men of the United States whom the Secretary of the Treasury had invited to that conference, the following resolution was adopted:

Resolved, That it is the sense of this conference that improved ocean transportation facilities between the countries composing the Pan American Union have become a vital and imperative necessity, and that every effort should be made to secure, at the earliest possible moment, such improved means of ocean transportation, since it is of primary importance to the extension of trade and commerce and improved financial relations between the American Republics.

I violate no confidence when I tell you that the delegates of South America returned to their homes with a feeling of disappointment that no practical means had been evolved by the conference for the creation of those steamship lines and facilities which they declared to be absolutely vital for the protection of trade and intercourse between their countries and ours. I earnestly hope that the next session of the Congress may promptly pass some measure which will meet the existing situation and enable us to seize and possess ourselves permanently of the greatest opportunity ever presented to this Nation of establishing enduring and mutually profitable commercial and financial relations with our neighbors of the South American Continent.

PRIVATE CAPITAL HAS FAILED TO ACT.

The claim is made that the Government should not provide the proposed steamship facilities because it will interfere with private enterprise. According to the testimony of Senators Weeks, Gallinger, and other distinguished men, American enterprise has failed to enter the South American field. They told us so when they voted for the adoption by the Senate of the resolution introduced by Senator Weeks, which declares that "it is desirable to develop and extend commercial relations with South America by the establishment of direct lines of communication for carrying the United States mails, for the transportation of passengers and freight," and that "*private capital has not engaged in this service to a sufficient extent to furnish facilities comparable to those enjoyed by the people of other countries having trade relations with South America.*" How could the Government, therefore, interfere with private capital, if it should undertake to give relief to South America, when private capital, as Senators Weeks and Gallinger and their colleagues declared, has failed to occupy that field?

For the past 50 years the Government has given private capital the monopoly of the ocean transportation field. Private capital has failed to take advantage of its monopoly because it has not developed the necessary steamship lines. Should we continue any longer this monopoly in favor of private capital, when it refuses to take advantage of it, and by so doing deprive our people of those facilities essential to their welfare and prosperity?

Shall this giant nation, strong in resources, intelligence, and courage sit impotently any longer and wait for indifferent private capital to build our naval auxiliaries and supply the marine facilities imperatively demanded for national preparedness and protection in time of war and for the welfare of our people and the promotion of our commerce in time of peace? We may as well ask private capital to build our Navy, or hesitate to have a Navy unless we can operate it at a profit.

PANAMA CANAL.

I have no patience with the argument that the Government should not supply needed or essential facilities or service to our people unless a profit can be earned. When private capital can not, or will not, supply such facilities or service, then it is the duty of the Government to supply them. *If this "profit" line of reasoning had prevailed, would we ever have built the Panama Canal?* Absolutely, no. Here is a huge enterprise vital to our material interests and to the interests of humanity. The undertaking was so large and the cost so great that private capital would not assume it. It was also certain from the very outset that the earnings of the canal would not even pay the interest at 3 per cent on the investment; that they would not pay the cost of maintenance and operation for many years to come. Did that deter the Government from undertaking this great work and performing this great service for the welfare of all the people? Fortunately such arguments did not prevail. We have the Panama Canal and it is worth to this Nation many times more each year in actual dollars than the annual loss sustained. Suppose we had waited until now for private capital to build the Panama Canal. We would not even have made a beginning.

We have done the same thing in building the Alaskan Railroad, to develop one of our greatest storehouses of wealth for the benefit of all the people. Private capital would not do it, so the Government has undertaken it. No doubt many years will elapse before the earnings of the road will show a profit on the investment, but the indirect benefit and profit to the people of this country, to say nothing of the direct benefit to the people of Alaska and the Northwest, more than justify the action of the Government.

SHALL GOVERNMENT ACT ONLY FOR PROFIT?

Can we afford to say that the Government shall never do anything for the general welfare unless each agency can earn a profit? If we did, the Government would and should go out of existence.

Take the Public Health Service, for example. One of its chief functions is to protect our people against the importation of contagious and infectious diseases. Several years ago the bubonic plague appeared in San Francisco. Rats become deadly enemies at such times because they are the most dangerous agency for the spread of the disease. The Treasury Department, of which the Public Health Service is a bureau, was appealed to for help. We spent hundreds of thousands of dollars for the extermination of the rats and the plague. We shall never see that money again, but we saved San Francisco. Would you have had the Government leave the people of San Francisco in peril until it could be assured of a profit on dead rats? Imagine the Government hesitating to act in such an emergency because it could not see a profit on the operation of saving the people.

We maintain a Life-Saving Service at a cost of $2,600,000 per annum. We saved 4,700 human lives during the fiscal year of 1914, but we didn't make a profit. Imagine a human being drowning and calling for help and Uncle Sam standing on the shore and shouting back that the price for each life saved is so many dollars and refusing to help the drowning citizen until the price was secured. Should we allow 4,700 people to drown each year because we can not save them at a profit?

A less extreme case is the Revenue-Cutter Service. We saved that year approximately $9,000,000 of property imperiled at sea. We made no profit on it, and it costs $2,500,000 per year to operate the service. Salvage companies' complain because the Government interferes with "private business" in saving life and property endangered at sea. Shall such sordid considerations deter the Government from operating useful agencies for the welfare of our country and the protection of humanity? Such arguments are not worth listening to, but they show the absurdity of one of the arguments made by the opponents of a merchant marine backed by the Government, viz, that it ought not to be created because it may be operated at a loss. Such a consideration should not be the determining factor in any matter like a naval auxiliary merchant marine, which involves the vital interests of the Nation. If the Government backs a shipping corporation, as proposed, I believe that it will operate at a profit and not at a loss.

NAVIGATION LAWS.

The champions of subsidy and private capital say that we must change our navigation laws, as well as give subsidies, before private enterprise will come to the front. There seems to be a great conflict of opinion among these gentlemen as to just what these changes should be, but they all seem to agree that the most important changes they want relate principally to the American seaman. Complaint is made that under our laws a larger number of seamen are required in the crews of the ships, that higher wages must be paid to them, and that the general standards for the comfort and upkeep of our sailors on board ship are more favorable to our sailors than those of other countries, and therefore that it is more expensive to shipowners to operate under our flag than under the flags of other countries.

I have no doubt that there are inequalities and inconsistencies in our navigation laws that can be corrected with advantage to the country. The shipping board can perform a most useful service by studying these laws and making intelligent recommendations to the Congress.

AMERICAN SEAMEN.

But I do not believe that the standards for the American seaman should be lowered, nor do I believe that any Congress of the United States will ever lower them. The reasons I believe it would be unwise are, first, the question of humanity. The treatment of the sailor under the navigation laws of most of the nations of the earth, so far as I have been able to study them, has always made me wonder why so many men choose a seafaring life as do. Second, the question of a trained naval reserve. It is just as essential, as I said before, if we are to have a naval reserve, that we shall have trained *American seamen* as it is to have the vessels themselves.

If we lower the standards for the American seamen by changing our navigation laws as private capital demands, or, at least, as I understand it demands, and put the American seaman on a parity with Asiatic and European seamen, then it will be impossible to induce Americans to adopt a seafaring life. Our merchant marine would in that event be manned by Asiatics and a heterogeneous collection of all the races of the world. They would have no American national spirit and could not be depended upon to fight for our flag in case of war.

NO GUARANTEE OF RELIEF THROUGH PRIVATE ENTERPRISE.

But even if the navigation laws are changed to suit private capital, and even if subsidies or subventions are granted, where can you get the guarantee or assurance that private capital will come forward in sufficient amount immediately to do the job so imperatively demanded for naval preparedness and for the promotion of our commerce? No such guarantee or assurance can be secured. I think it will be agreed that, even after such changes were made, private capital in this country would have to be educated to them; that it would come slowly to realize that the laws were sufficiently advantageous to suit it; that even then shipping ventures would be entered upon in a small and hesitating way for a long time; and that the ultimate development of a merchant marine through the medium of private capital would be slow and timorous and unsatisfactory at best.

We are confronted by a situation which, because of its very necessities, demands *prompt* and *vigorous* treatment by some agency strong enough, financially and otherwise, to be effective. The Government of the United States is that agency. There is no other.

OPPORTUNITY.

Think of our present opportunity, even disregarding necessities. Shall we or not grasp the marvelous opportunity we now have to extend our trade throughout the world? This opportunity will not wait. Already we have lost invaluable time; we have lost ground we can never recover. We must move swiftly if we are going to take the place in the world's markets which some of our leading industrial competitors have been forced to abandon. If we do it now, we can establish ourselves so firmly that we can not be dislodged upon the return of peace.

Opportunity is never worth anything to the timid or the hesitating. It is to the strong and courageous and swift that opportunity counts. Shall we sleep while the opportunity to be the dominant financial and industrial power of the world, with all of its great moral potentialities, is trying to force itself into our indifferent grasp, or shall we, with the courage, decision, enterprise, and vision of our ancestors, seize this marvelous opportunity and make America a permanent, vital, and irresistible force for the welfare of humanity and the progress of civilization?

This is what it will mean to the future of our country and to the part it must play in the world's history if we have the vision, the courage, and the imagination to go ahead.

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RURAL CREDITS

SPEECH

OF

HON. MORRIS SHEPPARD

DELIVERED

BEFORE THE TEXAS FARMERS' CONGRESS, AT COLLEGE
STATION, TEX., ON AUGUST 3, 1915

PRESENTED BY MR. THOMAS

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RURAL CREDITS.

SPEECH OF SENATOR MORRIS SHEPPARD, DELIVERED BEFORE THE TEXAS FARMERS' CONGRESS, COLLEGE STATION, TEX., ON AUGUST 3, 1915.

Credit in the financial sense is a right to money based on a promise to pay money, or to use a shorter expression, on debt. Promises to pay money, embodied in writing and of recognized standing in the commercial world, are distinct economic entities, distinct forms of property. They are commodities that may be bought and sold and pledged and they may perform all the functions of money, circulating in the same way, affecting prices in the same way. The vital element of their value is faith in their redemption at maturity in what is popularly called real or metallic money. Before that time arrives they may have been used to discharge hundreds of other obligations, or through clearing-house arrangements and other instances of mutual cancellation extinguished each other to the extent of hundreds of millions of dollars, effecting exchanges of goods or services to that degree, without the employment of a cent in cash.

McLeod, the celebrated philosopher of credit, said that the discovery most deeply affecting the fortunes of the human race was the discovery that debt was a salable commodity, and that the most colossal branch of commerce was the negotiation of debts. Daniel Webster said that credit was the vital air of modern commerce, that it had done more a thousand times to enrich nations than all the mines of all the world. Indeed, it is not possible to measure the impetus human progress received from the ascertainment that the paper evidence of a right to money, or, to express the same thing in another way, of an obligation to pay money, might perform all the offices of money until extinguished by set-off or maturity. The chief benefit to society of this credit instrument, this evidence of debt, was the elimination of the necessity of using the precious metals in every human transaction. It led to the development of natural resources and human capacities on a scale infinitely larger than would have been physically possible had a transfer of specie, or of paper representing a deposit of specie, remained an essential feature in every exchange of goods or services. To-day the tremendous fabric of business rests almost entirely on this paper instrument of credit, and it constitutes the most extensive and valuable form of property with the exception perhaps of land itself. And it is more. It is an active, dynamic, infinitely self-multiplying force. Without its assistance in providing means for their practical application, electricity and steam would still be the playthings of the laboratory associated mainly with the kite string of Franklin and the kettle of Watt. It has tunneled the mountains, mined the earth, bridged the rivers, traversed the seas. It has builded cities, fashioned roads, constructed canals, deepened harbors, imprisoned floods, erected churches, universities, libraries, hospitals, and structures for every other human need.

It will be seen, therefore, that debt is the basis of modern commerce and finance. In fact the purchasing power, the economic, developing power of a country, is said to be measured by the totality and quality of its debts in addition to the actual metallic money within its borders. The man who contracts a debt for so sound a purpose and with such probability of redemption that the written evidence thereof becomes itself a subject of trade and an instrument of exchange, is a benefactor of mankind. The extent of the employment of such credit instruments will mark the extent of a nation's material development. The object of a proper system of rural credits is to enable the farmer, whose productive processes in the aggregate are surer than all others because they embody nature's methods for the sustenance of life, to obtain at the lowest possible cost the capital necessary to effect such processes. I have given attention to this phase of the subject in order to answer the question so often propounded when rural credit is mentioned, viz, Why do we want to facilitate the farmer's going into debt? The man who is capable of producing something of value to mankind, but who is without the necessary capital, is not only allowing an asset of his own to go to waste, but is depriving society of a legitimate addition to its wealth in not borrowing that capital. And if society is so framed that he can obtain such capital only on exorbitant terms, or not at all, it is doing a serious injustice to him, to accumulated capital, and to itself. Truly may it be said that a debt for a productive purpose by one able to accomplish that purpose is the best of all investments. It enables the maker to translate his character and capacity into exchangeable capital.

I am justified in saying, therefore, that we would perform a gigantic service both to the country and to the farmer in providing him with a system of credit at the lowest practicable cost, adapted particularly to his condition. By confining the system to the productive processes of the farm, we would establish a credit instrument of the highest quality, whose redemption would be assured by the nature of its origin, one in which the elements of speculation and inflation would be of insignificant quantity, if indeed they existed at all.

Now it so happens that in the United States the deposit banks are the chief sources of current credits. They are organized to supply such credits for profit, credits which they undertake to redeem in lawful money on demand. Naturally the trading public prefers an instrument of this kind, backed by an institution of recognized standing and power, subject to frequent Government examination, to the future maturing debt of an individual, whom under present conditions it has little means of knowing, however valuable and sound may be the purpose of the obligation, however certain its redemption in the course of commerce or of nature. So the individual finds it necessary to exchange his debt for a debt of the bank's manufacture, in order to obtain a readily exchangeable credit. Of course he pays the bank a profit in the form of interest, and in addition must, as a rule, furnish security in the shape of other property, or of an indorsement by another person. The mass of exchangeable credits in the United States consists of bank credits which have been substituted for individual credits. The evidence of the bank's debt to the individual consists of a bank book with a deposit entry and a check book; that of the individual's promise to pay the bank is usually a promissory note. The principal medium of exchange in this country to-day is the bank check, and its source the bank credit in the shape of a deposit. The bank may by adding its indorsement pledge the individual's note to a Federal reserve bank, receive Government credit to the amount of the note at a distinctly lower rate of interest than of its loans to the public, and proceed to lend such credit at its own usual rates. The banks are required to maintain a cash reserve against these deposit obligations ranging from 12 to 18 per cent. So elaborate is the mechanism of bank credit, so wonderfully conducted are these modern debt shops, that with total cash holdings of less than one and three-quarter billions in 1914 they handled through their own clearing houses transactions aggregating over 163 billion dollars in value. The amounts handled through the use of checks outside of the clearing houses are to be added. The total stock of money, both specie and currency, in the United States is only a little over 4 billions.

It is evident that the present banking system is generating an enormous mass of bank credits for the transaction of modern business and is thus rendering measureless service. It is rendering this service, however, mainly to commerce and manufacture, and it is almost wholly unadapted to that fundamental division of human effort, agriculture, without which commerce and manufacture would perish. The banker of to-day with his tremendous total of demand payable obligations, about 19 billions, realizes that both solvency and profit depend on the rapid maturity of his loans. It is natural that he should seek to do business with the merchant, the manufacturer, the broker, the middleman because as a rule they may complete the processes for which they require credit within 30, 60, 90, 120, or 180 days. Almost all the farmers' processes run from eight months to two, three, and four years, and he is not in position to repay capital advanced for such processes until these periods expire and his returns arrive.

Again, the merchant, the manufacturer, the middleman and the like, small in number as compared with the farmer, dealing in large units of business as compared with the average farmer, are rated by commercial agencies and are under their constant observation.

Thus the bank is enabled to know the line of credit to which they are entitled, and is itself in more or less intimate touch with them from day to day. The million large farmers in this country are either in position to deal with the deposit banks because they have established credit, or are independent of the banks, being lenders themselves to no little extent. The five million small farmers, nearly two and a half millions of whom are tenants, are in a different situation. Their individual financial requirements are so limited, their number so large, their habitations so scattered and remote, that individual ratings by the great commercial agencies are out of the question, and constant personal observation of their needs, resources, conditions, and capabilities on the part of bankers, an important element of credit, frequently difficult to obtain. The banker would not be justified in establishing a branch in every rural community, or a permanent agency. Consequently the personal knowledge necessary to credit extension is in a great degree lacking. As has been said by Mr. J. R. Cahill, a noted student of this subject: "Joint-stock banks do not mix with the small farmer."

The fact remains, however, that joint-stock profit banks of the smaller class are distributed throughout the rural sections and are to-day the principal sources of credit for farmers either directly or through the merchant. As would be inferred from Mr. Cahill's remark, the results are unsatisfactory both to borrower and lender. The lender feels that the lack of security is such that he must protect himself by a higher interest rate on most farm loans, especially those for crop making. Thus he makes the successful farmer bear the losses occasioned by the unsuccessful. Let those who oppose the principle of joint liability in rural credit associations remember that under the present system it is in practical operation, although the borrower does not realize it. If the merchant furnishes credit to the farmer, and this he does in many instances, his profit charge must cover not only his own risk but the interest he pays the bank for his own credit. Another thing to be kept in mind is that the smaller the joint-stock commercial bank the larger must be the returns on individual loans in order to insure profit. It is a well-known principle that the smaller the volume the higher must be the returns per unit of business. The establishment of State and national banks in the smaller towns does not mean cheaper credit; it means additional credit plants by which a higher profit per loan must be made. Let it be remembered also that the profit banks do not make loans to farmers beyond 10 months, and that, as a rule, therefore, many of the most important farm processes they do not and can not support at all. For instance, a farmer who buys a number of mares or cows for breeding purposes must wait two, three, or four years before the offspring is sufficiently developed to replace the original capital by their sale. And, after all, if the joint-stock banks could be adapted to every farm requirement, the fact that they sell credit for profit and have a large operating expense would always make their interest rates higher than those of cooperative credit associations conducted by borrowers for their own benefit with the elements of profit and expense reduced to the lowest practicable minimum. Perhaps it will be illuminating to state here that with a total capital of a little over a billion and 60 million dollars the national banks of the United States had gross earnings during the fiscal year of 1914 of over half a billion dollars, or, to be exact, over 515 millions. Of this amount over 301 millions represented expense of operation. I have not the figures for the earnings and expenses of the 17,000 other profit banks, but it is safe to say that they were correspondingly enormous.

And let me say right here that the merchants of this country need a great merchants' bank controlled by merchants in the interest of commerce, and not for bank profit, and having for its purpose the provision of a market for merchants' bills of exchange based on goods in process of distribution. By such a system they would obtain credit at far cheaper rates than at present, and all commerce would be given a greater impetus. The farmer would be benefited because the expense of distributing his products through wholesale and retail mercantile processes would be materially lessened by the cheapening of mercantile credits.

In view of the facts I have presented it is hardly surprising that the American farmer is today paying an average of 8½ per cent on his present indebtedness of 6 billions of dollars, in most instances must pay for funds for current farm operations anywhere from 10 to 25 per cent, and that frequently he can not get such funds at all. He is at the mercy of a banking system unadapted to his particular needs. And yet twelve million people are at work on our farms, dependent on whom are thirty or forty millions more. Farm property has a total value of 40 billions of dollars, while that of the annual farm output is in the neighborhood of 10 billions.

I think I have said enough to show the necessity of credit institutions conforming especially to the requirements of agriculture. In fact, they constitute one of our country's fundamental needs. The Secretary of Agriculture, David F. Houston, expressed a severe but just indictment of the time when he said in his last annual report that agriculture had made marked progress in a number of directions, but that as an industry it had not kept pace with other activities; that relatively speaking, there had been a neglect of rural life by the nation; that we had been so bent on building up great industrial centers, on rivaling the other nations of the world in manufacture and commerce, fostering these by every natural and artificial device we could think of, so busy in the race for populous municipal centers that we had overlooked the very foundations of our industrial existence. Let me present some of the evidences of the neglect to which the Secretary of Agriculture, one of the clearest of modern thinkers, one of the ablest of modern economists, so pointedly refers. The number of tenant farmers increased from 25 per cent of all farmers in 1880 to 37 per cent in 1910, while the rural population declined from 70 per cent of all our people in 1880 to 53 per cent in 1910. Of the 935 million acres of arable land in this country about one-half is in farms and only half of that half is actually improved. The farmer receives on an average only 35 cents of each dollar the ultimate consumer pays for farm products. Poor farm returns make farm wages the lowest of all. The farmer can not continue to pay the high credit charges now exacted and long survive. In my judgment nothing would do more to vitalize agriculture and to strengthen the foundations of this republic than to enable the farmer to utilize his credit resources at the lowest possible cost.

To obtain the necessary credit recognition the farmer must establish permanent confidence in the security behind his promises to pay. How may this be accomplished? The answer is that the farmers must organize themselves into credit societies along cooperative, nonprofit, minimum expense lines. This method has been successfully tested by the farmers of Germany, and their example has been successfully followed by the farmers of Italy, Austria, France, Russia, India, Ireland, Belgium, Denmark, and other countries. A small beginning has been made in the United States, and I shall refer to this later. The method to which I now direct attention is the most popular and effective of several credit systems employed in Germany, the cradle of rural credit. It had its origin in Germany in 1849, 64 years ago, when Frederick William Raiffeisen, the Burgomaster of Weyerbusch, organized the first cooperative rural credit society, or bank, in Europe. He made his famous announcement, containing a truth divine and beautiful, that tenant farmers, however poor in worldly goods, could by a combination of their character, energy, and ability and by becoming mutually and jointly liable for the debts of each, establish a security as good as gold. That declaration meant the application of brotherhood to agriculture. When Raiffeisen first made it he was ridiculed and derided. Undaunted, however, he gathered a few small farmers, mostly tenants, if I remember correctly, into his first society. They struggled along for 12 or 15 years before the significance of the movement began to be understood, and then other societies began to form on similar lines. This first society had no capital stock, no shares, no dividends, no salaries except a nominal compensation for the secretary and treasurer, and the place of business was some modest room where the members were permitted to meet without charge. The operation of the society consisted in the acceptance of savings deposits from members and the local public in general, and of loans to members only at a rate of interest slightly in excess of the rate paid on deposits. To-day there are 17,000 of these societies in Germany, and they lent nearly 2 billion marks, or nearly 500 million dollars to German farmers in 1912 at an average interest of 3 to 4 per cent.

Let us examine more carefully the rural credit society of the Raiffeisen type. What are its chief features? First, it applies the principle of collective guaranty based on unlimited liability, the principle that a number of persons may obtain money by a common guaranty at a lower rate than they can get it individually, or may obtain it collectively when they can not get it individually at all. The members of a credit association of pure Raiffeisen character are liable jointly, severally, and unlimitedly for the obligations of the association. This principle gives the Raiffeisen rural bank a standing of the first class and enables it to obtain from the investing public at the lowest rate the money market affords, call money alone excepted. Second, it applies the principles of no dividends, no shares, no salaries except a nominal sum for the treasurer, and an insignificant expense. By this means it is enabled to lend members at a rate very little above that paid to depositors, a small margin being allowed for nominal expense and for the building of a reserve. Third, it applies the principle of limited area. By confining itself to a small district where people know each other, or may easily do so, the society has the means of ascertaining whom to admit to membership and is in position to judge with accuracy as to the size and advisability of loans. The society is also thus enabled to keep the borrower under its eye and to see that he makes proper use of the money advanced him. Public opinion in the district is thus enlisted on the side of the lender, a great majority having a pecuniary interest in the loan. Again, this principle creates a spirit of helpfulness in the public toward a borrower in difficulty because of this same interest of most of the people of the district in his ability to repay. Fourth, it applies the principle of productive purpose. The borrower binds himself to apply the loan to some productive farm process which, when accomplished, will realize sufficient funds to pay the debt and leave a profit for himself. Adequate time is always given for the process to be finished, the loans running from six months to three, four, and five years. Fifth, it applies to borrowing members the ordinary rule of security. The borrower may be required to deposit a mortgage if he owns land, or any chattels, including future crops, or the article purchased by the proceeds of the loan, or one or more sureties. Sometimes only the borrower's note is taken. Sixth, it applies the principle of loans to members only, an additional precaution against unsafe loans. Seventh, its working capital is obtained mainly from savings deposits by the general public, current account deposits by members, advances by central rural credit associations, and, directly or indirectly, by the Government. Raiffeisen himself scorned the idea of Government aid, and his system reached extensive proportions without it. When Government aid finally came in Germany, however, it was at the instance of the farming element, and it is now a permanent part of the system, never being carried to such an extent, however, as to alter the fundamental basis of private initiative and private control. Eighth, it applies the principle of self-government, control resting with the members, each of whom has an equal voice. At the annual meeting the members elect a committee of management, a supervisory council, and a treasurer. The committee of management conducts the business of the society. Ninth, it applies the principle of control of farmers' credits by farmers; that is, by farm borrowers for their own benefit. Only farmers are admitted to membership.

The Raiffeisen system began without shares, but an imperial law in 1876 required all German cooperative societies to have a foundation capital. This law Raiffeisen tried to avoid as far as possible by fixing the shares at a maximum of 10 marks, or $2.40. Since the enactment of this law the shares have grown in value, although they are still strikingly small. To-day the average value of shares in these cooperative rural banks of Germany is about $25, the average number of members 92, ranging from a minimum of 7 to a maximum of 1,400, the average yearly expense of management per bank 638 marks, or about $152. Other societies have been formed in Germany along similar lines, but with fewer restrictions than those embodying pure Raiffeisenism. Many allow dividends on shares, but in no case do they exceed the rate of interest charged to borrowers. The total share capital of the rural cooperative banks in Germany in 1910 was, in round numbers, 22,000,000 marks, or about $5,300,000, an average at that time of 1,700 marks per bank, or about $400. And yet they had deposits in that year of over a billion and a half marks, or $360,000,000, and loaned nearly the same amount to member farmers at 3 and 4 per cent. In 1912 deposits and loans had grown until the loans were nearly half a billion dollars, and the deposits correspondingly large. It is gratifying to note how rapidly the small farmers of Germany became experts in handling the machinery of credit and what an enormous business they came to transact for their own benefit with so slender a capital of their own providing. Do you tell me that American farmers can not do what German farmers have done? I say not only that they can but that they must if they are ever to achieve the financial independence and prosperity they so eminently deserve. On account of the extensive territory of the United States, the large number of farmers distributed over so wide an area and engaged in such diverse phases of agriculture, the evident difficulty of uniting them in an enterprise of this kind through private effort, I feel that Government direction and Government financial aid in the organization and conduct of such a system in our country is imperative, unless we are to wait a generation, or even longer, for its spontaneous development.

But the Raiffeisen system, while the largest, is not by any means the only form of agricultural credit in Germany. Another system of cooperative credit in Germany, designed primarily for wage earners in the towns, but in which small farmers largely participate, had been inaugurated by Francis Frederick Schulze, better known as Schulze-Delitzsch, some time before Raiffeisen started his first rural bank. The Schulze-Delitzsch system adapted cooperative credit to the needs of wage earners in cities and towns. It preceded, and served as a general model for, the Raiffeisen system which adapted cooperative credit to the rural sections. Both systems obtain working capital principally from deposits by members and outsiders, loan to members only, and have the same general form of self-government. Both have unlimited liability, although quite a number of the town societies have limited liability. The differences lie, first, in the fact that the town societies take their members from all occupations, while the rurals take only farmers; second, in the fact that the shares in the former are much larger than in the latter, averaging 360 marks, or about $86 per member; third, in the fact that the former does a more general banking business, with larger accumulations of capital and higher dividends than the latter, the dividends of the former ranging from 5 to 7 per cent, while those of the latter are much smaller, or do not exist at all; fourth, in the fact that the loans of the former are for much shorter periods than those of the latter; fifth, in the fact that the former is confined to no particular territory of operation, as is the case with the latter. The small farmers living near the town took advantage of the former and became its largest class of shareholders, the town wage earner being the next largest. There were 1,000 of these societies in Germany in 1910, the last year for which I have definite figures, with a membership of 640,000. With a paid-up capital of 235 million marks, or 156 million dollars, they had acquired an added working capital in 1910 of 1,145 million marks, or 275 million dollars, and they loaned to members in that year over 4 billion marks, or in the neighborhood of a billion dollars, at 3 and 4 per cent.

Let it be added that both the Schulze-Delitzsch and the Raiffeisen systems are coordinated with federations of agricultural societies in each Province, and through them with national federations covering the empire. The work of the federations is that of instruction, organization, propaganda, and inspection. The Raiffeisen system is also affiliated with central cooperative banks in the various Provinces, the provincial centrals being affiliated in turn with a national cooperative central. The work of these central banks is to equalize the credit resources of the locals, employ and transfer their surplus funds and provide them with added capital when needed. The Schulze-Delitzsch locals do not as a rule have provincial central banks, but are connected with a special section of the Dresden Bank, a private institution, which serves them as a national central. In addition the

Imperial Government in 1895 created and endowed the Prussian Central Bank to do business with the central banks of all forms of cooperative societies, including public savings banks, receiving deposits from them, advancing them loans, discounting their bills. By 1909 the Imperial Government had endowed the Prussian Central Bank with 75 million marks, or 18 million dollars, in the form of 3 per cent Government securities, and during that year the bank loaned to society centrals, public savings banks, and similar institutions 737 million marks, or 176 million dollars. Certain states of the empire have institutions modeled on this bank.

It is a notable fact that these two fundamental types of cooperative credit, types which have spread throughout the world, were in extensive operation before Government aid of any sort was bestowed. They had been laboriously worked out by private citizens without Government inspiration. It must not be forgotten, however, that the German Government helped these systems materially by providing suitable inspection laws, by requiring foundation capital, and finally by instituting and subsidizing the Prussian Central Bank. It is but fair to say that there are those in Germany who contend that this aid by Government was not essential, excepting, perhaps, the inspection laws, and that it has not been by any means an unmixed blessing. It should also be said that some of these societies of both types have failed. On the whole, however, they have been remarkably successful and have wrought wonders for German agriculture and through it the German nation. It is undoubtedly the thorough and intelligent organization of German agriculture that has given Germany the marvelous power it is now displaying.

Turning for a moment to other countries, let it be observed that while in France there is a large association of pure Raiffeisen societies, receiving no assistance from Government, still the great body of cooperative rural credit in France has been builded principally by State aid. This takes the form of loans without interest for five-year periods, subject to renewal, to regional centrals, which are formed from capital supplied by locals, said loans being to the extent of four dollars for every dollar of capital subscribed by locals. The regionals make loans to locals for working capital to some extent, but the method most largely employed is for the member of a local desiring credit to draw a bill, which the local indorses and sends to the regional for discount. The regional may rediscount the bill at the Bank of France and at other credit institutions. The locals have small shares on which 4 per cent interest is paid. Liability is in such degree as each local votes to make it. Most of the locals confine liability to number of shares owned. Authorities on the subject tell us, however, that sentiment in favor of unlimited liability as the best safeguard of cooperative credit is growing in France. With the exceptions mentioned the French State-aided system has the general principles of the Raiffeisen method. In Austria and Italy, where both the Raiffeisen and Schulze-Delitzsch plans have been widely copied, Government aid is in the shape of donations for initial expense and long-time loans without interest, either directly or through centrals. In both countries, however, individual societies had been developed by private effort before the Government began to extend assistance. In India the cooperative societies act of 1904 provided for the inauguration and supervision of such societies, both urban and rural, by Government agents in the various provinces. Loans were also advanced by the Government. These societies are to-day independent of Government and are making rapid progress. In Russia rural credit is founded on Government assistance and supervision.

It will be observed that the Raiffeisen and Schulze-Delitzsch societies provide the farmer with credit for the current processes of production. Long term or mortgage credit, by which the farmer obtains funds for permanent improvements, is supplied in Germany by a third system of cooperative credit societies known as the Landschaften. A society of this kind is composed of all the landowners of a province or principality. A member desiring a loan executes a mortgage on his land payable to the society, in return for which the society issues a bond, payable to bearer, guaranteed by all the members with all their properties and by the accumulations of the society. The society has no capital and receives no deposits, its sole function being the exchange of its collective bonds for the individual mortgages. Originally the society delivered the bond to the mortgagor and he found his own purchaser. The advent of the land-mortgage bank, which paid the mortgagor in cash, made it necessary for the Landschaften to establish banking departments for the purpose of marketing their bonds. Thereafter the mortgagor and the bond purchaser ceased to do business with each other and dealt only with the society. The first organization of this kind was founded by Frederick the Great in Prussian Silesia through a royal decree in 1770. By this decree the landowners of each Principality of Prussian Silesia were combined into a compulsory society of the character indicated, and the union of these was called the Generallandschaft of Silesia. This action was due to the fact that war, panic, currency fluctuations, and declining land values had brought the Silesian farmers to the brink of ruin. A Berlin merchant named Buring had suggested to Frederick in 1767 the principles on which the Landschaft was founded. He argued that the soil was not only the farmer's but the nation's greatest asset and that this asset could be transformed into credit and given currency by the use of the collective land guaranty. Frederick had an unusually keen appreciation of the value and the significance of agriculture. He overlooked no opportunity for its encouragement. He gladly permitted farmers who had suffered from the devastating conflicts of the time to hitch his war horses to the plow. He drained the marshes of the Oderbruch that they might be reclaimed for cultivation. Especially did he advocate the planting of all kinds of trees. And his remarkable measures for the stimulation of agriculture did more for the material welfare of Prussia, more to make it a leading power among the nations of the earth, than his victories at Hennersdorf and Rossbach. His devotion to agriculture may well serve as an example for the Government of this Republic. The Landschaft founded by Frederick the Great in 1770 is still in active and successful operation. It has survived nearly five generations. It was followed by the voluntary organization of similar societies in other provinces from time to time. These societies have overcome all difficulties and have practically always furnished the farmers composing them with needed credit, bringing them contentment, independence, and prosperity. Their bonds brought higher prices than those of the State when the Napoleonic wars prostrated Prussia. In fact, the Government of Prussia in 1808 and 1809 found it necessary to join the Landschaft of East Prussia in order, by mortgaging thereto its Crown lands and forests, to obtain funds with which to discharge part of the French levies. To-day these Landschaft bonds are holding their own under the stress of the mightiest conflict of all time. In April of this year Prof. Brodnitz, of Halle University, in Germany, said in a letter: "The Landschaft system is standing the test in this war as it has in all other times." There are now 25 of these societies in Germany. Their total bonds in circulation in 1909 amounted to nearly three and a half billion marks, or $840,000,000, carrying an average interest rate of 3 to 4 per cent. They are legal investments for trust funds. They run from 45 to 54 years. The explanation of their integrity lies in rigid Government control, reliable appraisal, and mutual liability. A Landschaft must be chartered by the Government and only one may exist in a province. The officers and the land appraisers are appointed by the king, and thus are independent and disinterested. The Landschaft has no capital, no shares, and makes no profit. It receives from the mortgagor an interest payment sufficiently in excess of the rate paid the bondholder to defray the very moderate expense of operation, to create a small reserve, and to establish an amortization fund which will discharge the principal when the mortgage matures. It may seize, sell, or administer mortgaged lands without procedure in the courts and may seize the movable property of a member who permits his mortgaged land to deteriorate.

Recently the East Prussian Landschaft created a cooperative life insurance company, enabling its members to obtain life insurance at actual cost. It then decided to give a mortgagor the right to omit his amortization payments if he would use them for premiums on a life policy. In the event of the mortgagor's death before the maturity of the mortgage, the amount of the policy is to be applied to the debt. This will, in many cases, remove the entire encumbrance from the property, leaving the estate in a much better position to meet the obligations that usually crystallize in such an hour. A distinguished German student on this subject, Dr. Kapp-Konigsberg, has said that life insurance policies are destined for all farmers, including the small and very small holders of land, as a means of paying off mortgages.

A fourth form of credit intended especially for German farmers is supplied by the provincial governments through provincial land banks financed and operated by said governments for the purpose of lending money to farmers on land mortgages. These banks are in reality official departments of the government of each Province, and each Province has such a bank. The provincial government supplies the capital of the bank and allows it to accept deposits, which it guarantees. It also guarantees the mortgages on which the loans are made, as well as the bonds which it permits the banks to issue on the basis of the mortgages. Millions of dollars have been loaned to German farmers by this method. The amortization feature, or partial payment of principal with each interest installment, is provided in such way that the total amortization payments equal the principal when the debt matures. The mortgages run for 30, 40, and 50 years. These banks have also the life insurance feature before described. The officials are not permitted to have any pecuniary interest in the bank. Their salaries are paid by the provincial government. The profits of the bank go to the provincial treasury and are used to reduce taxation. Some of these banks make loans on city lands also.

A fifth form of credit available for farmers in Germany is the private, joint-stock, mortgage bank. Observe that of these five forms two are for short-term, personal, current credit, while three are for long-term, mortgage credit. There are 40 private land mortgage banks in Germany, and they have outstanding loans on real estate mortgages to the amount of 10 billion marks, or nearly two and a half billion dollars. These banks are organized under the German mortgage bank law of 1899, and they are supervised by royal commissioners. They are permitted to lend money only on first mortgages on real estate representing not more than two-thirds of the appraised value of farm land, three-fifths of that of city and town land. They must provide an amortization feature, and they may issue and sell bonds based on the mortgages. Their capital and reserves are responsible for the bonds, as is also the land covered by the mortgage. They are private banks organized for stock profit. They are not in any sense cooperative institutions. Of their 10 billion marks of outstanding loans only about 6 per cent is on farm mortgages. My authority for this statement is Dr. M. Augsbin, of Berlin, in his address before a subcommittee of the commissions which recently went abroad to study rural credits. Such address may be found in Senate Document No. 214, Sixty-third Congress beginning on page 390. Over 90 per cent of this vast amount of mortgage loans by German joint-stock, mortgage banks is on city and town realty. These banks, therefore, are of little comparative importance so far as German agriculture is concerned. Evidently German farmers prefer the cooperative, nonprofit institutions controlled by themselves or the mortgage banks of the provincial governments.

I now wish to call attention to the remarkable fact that the bill recommended to the American Congress, the so-called Fletcher-Moss bill, as a suitable form of rural credit in the United States by the commission which Congress authorized on March 4, 1913, to investigate and study in European countries cooperative land mortgage banks, cooperative rural credit unions, and similar organizations provides for a joint-stock, land mortgage bank, controlled by stockholders for profit. Senator Fletcher, of Florida, and Representative Moss, of Indiana, were chairman and vice chairman of this commission, which was called the United States Commission, and which was joined in its European investigation by the American Commission, a commission authorized by the Southern Commercial Congress. The Hollis-Bulkley bill, introduced by Senator Hollis, of New Hampshire, and Representative Bulkley, of Ohio, chairmen of the joint rural credit subcommittee of the banking and currency committees of the Senate and House, which held extensive hearings on the subject, and which had before it the results of the elaborate investigation of cooperative credit in Europe by the United States Commission and the American Commission, does practically the same thing as the Fletcher-Moss bill.

The Hollis-Bulkley bill provides for Federal farm bond banks, confined, like the Fletcher-Moss banks, to a single State, and for Federal bond and mortgage land banks in districts corresponding in number to the Federal reserve districts, but not necessarily coterminous with them. In each Federal land-bank district contemplated by the Hollis-Bulkley bill national farm-loan associations operating in one or more counties are authorized to lend current funds on first mortgages on farm lands within their respective territories, with the right of selling mortgages to the Federal land bank and of issuing certificates against deposits of current funds, which certificates are convertible into farm-loan bonds when presented to the Federal land bank in any multiple of $100. Before it may sell mortgages to the Federal land bank the farm-loan association must subscribe to the capital stock of said bank in an amount equal to 10 per cent of its own capitalization, and every borrower from a farm-loan association must become a stockholder to the extent of 5 per cent of the sum borrowed. The capital stock of the loan associations must not be less than $10,000 and may be organized by any number of natural persons not less than 5. The original stockholders may increase the capital from time to time to provide for the amount taken by borrowers, and they are thus always in position to maintain control and to conduct the institution from the standpoint of stock profit. The capital of the Federal land bank which may lend on mortgages anywhere in the district is $500,000, and whatever part may not be taken by individuals or loan associations is to be furnished by the Government. The Government stock is to be retired when individuals and associations subscribe the full amount. The Fletcher-Moss bill, which provides for the issuance by joint-stock profit banks of land bonds based on mortgages, has an alternative feature purporting to be cooperative. The main elements of this feature are, first, the restriction of any single stockholder to 10 per cent of the share capital, and to 1 vote regardless of shares owned, the par value of which is $25, and; second, the apportionment of earnings in excess of current interest rates among borrowers in proportion to business done with the bank. When the stockholders elect to add these elements they may use the title "National Farm-Land Bank Cooperative." It is a mild comment to say that this is taking an unpardonable liberty with the term "cooperative." Both the Fletcher-Moss and the Hollis-Bulkley bills limit loans to agricultural purposes and to reduction of existing farm indebtedness.

As a matter of fact, it would be difficult to conceive of institutions more radically different than those provided by the Fletcher-Moss and Hollis-Bulkley bills on the one side and that true type of cooperative credit, the German Landschaft, on the other. Cooperative credit in the true sense means control by borrowers. The joint-stock institutions created by the Fletcher-Moss and Hollis-Bulkley bills are controlled by lenders, and in neither are stockholders restricted to farmers. The German Landschaften have not a dollar of capital. The Fletcher-Moss and Hollis-Bulkley proposals involve the use of capital running into the millions on which profit is to be made. It is true the Hollis-Bulkley bill limits interest on the Federal land-bank bond to 5 per cent. But it is also true that with profit-seeking stockholders in control other means may be found of increasing profit. It is entirely possible that the Fletcher-Moss or the Hollis-Bulkley banks will result in good, but it will be a benefit arising from an attempted adaptation of the old system of profit banking to agriculture. They do not in any sense provide a cooperative rural-credit system for American farmers, and they hardly touch that far vaster field of American agricultural need, the field of short-term credit for current processes of production. I do not mean to criticize these gentlemen. Their patriotism, ability, and devotion to the popular good are not open to question. The conclusion can not be avoided that they do not believe we are yet ready for cooperative, nonprofit rural credit in the United States. In reporting to Congress the results of its painstaking and conscientious work abroad the United States Commission, while recommending the bill later known as the Fletcher-Moss bill, pronounced it "the smallest advance which should be granted by the Federal Government at this moment to this new movement in the rural life of our Nation." Both Senator Fletcher and Representative Moss signed the report in the capacities before described.

The distinctive provisions of the Fletcher-Moss and Hollis-Bulkley bills are the long period of the loans, 35 years being the maximum, the amortization process by which sufficient amounts are added to each interest payment to discharge the principal when the loan matures, permission to use the bonds as security for postal-savings deposits and as legal investments both for time deposits in national banks and trust funds held by Federal Courts, exemption of the bank capital, the mortgages, and the bonds from all taxation, General Government supervision, and limitation of loans to agricultural purposes. The strict Government control and independent official appraisal that have made the Landschaften so successful are not applied in these measures to anything like the same extent as in the Landschaften. The privileges enumerated will, of course, enhance the value of the bonds and make these banks more attractive to investing stockholders.

It is conceded that American homestead exemptions will largely nullify the successful operation of these bond and mortgage banks, except where the mortgage is for the purchase money. In fact, the Fletcher-Moss bill makes the waiver of homestead exemptions essential to the incorporation of such a bank within a State, and the Hollis-Bulkley bill, in effect, does the same. It would require a constitutional amendment in Texas and many other States to do away with this exemption, and it is practically certain that this safeguard of the home would not be abolished to extend the business of profit banks. That the States would seriously consider the modification of this exemption so as to permit foreclosure for permanent improvement funds as well as purchase money, provided these funds were advanced by a people's cooperative nonprofit society, or a Government mortgage bank, is a more tenable, though still doubtful, proposition.

These joint-stock, bond, and mortgage banks will be handicapped not only by homestead and other exemptions, but by uncertainty of titles in many sections of the country and unsatisfactory systems of conveyance and record. Add the fact that the current productive needs of the farmer under present conditions overwhelmingly outnumber and outweigh his requirements for long-term mortgage credit and there will remain no doubt that the most practicable and acutely necessary system at this time is the system of cooperative current rural credit based on the Raiffeisen principle. I do not mean to minimize the importance or the necessity of long-term mortgage credit. I hold, however, that if homestead exemptions and other practical difficulties in the way of such credit are ever abolished, a purely cooperative system on the lines of the Landschaft would be infinitely preferable to the joint-stock profit bank. In attempting to develop the latter alone we are virtually abandoning the cooperative principle. In my judgment the American farmer is entitled to an immediate test of this principle along the most practicable lines, and especially so in view of the priceless benefit it has brought to the farmer of other lands.

The present prominence of the rural-credit system in this country may be traced in large part to an invitation extended by Senator Fletcher, president of the Southern Commercial Congress, to the Hon. David Lubin, American delegate to the International Institute of Agriculture at Rome, Italy, to address the congress on this question at its annual meeting in April, 1912, at Nashville, Tenn. Leave of absence was secured for Mr. Lubin through Secretary Knox, of the State Department, and he came from Rome to Nashville to deliver the requested address. The establishment of the International Institute of Agriculture, a body in which 53 nations are represented, was due to Mr. Lubin's efforts, and he has remained the American representative of that world-embracing farm agency since its beginning in 1905. He became familiar with all forms of agricultural effort in Europe. He brought to Nashville the data he had been gathering for years and in his address before representatives of 27 States who had assembled especially to hear him showed what remarkable progress had been made by European agriculture in cooperative credit and other forms of organization. Inspired by this address and by its desire to be of assistance to American agriculture, the Southern Commercial Congress resolved to send a commission to Europe composed of representative men from every State to study rural credits and other achievements of the European farmer. The congress, through its president, Senator Fletcher, and others, submitted the plan to the Farmers' Union of America, the National Grange, and other agricultural associations in this country. It met their hearty approval. It was submitted to the 1912 national conventions of the two great political parties. The result was that the platform of the Democratic Party contained the following:

> Of equal importance with the question of currency reform is the question of rural credits or agricultural finance. Therefore we recommend an investigation of agricultural credit in foreign countries be made so that it may be ascertained whether a system of rural credits may be devised suitable to conditions in the United States, and we also favor legislation permitting national banks to loan a reasonable proportion of their funds on real-estate security.

The Republican platform read as follows:

> It is of great importance to the social and economic welfare of this country that its farmers have facilities for borrowing easily and cheaply the money they need to increase the productivity of their land. It is as necessary that financial machinery be supplied to satisfy the demand of farmers for credit as it is that the banking and currency systems be reformed in the interest of general business. Therefore we recommend and urge an authoritative investigation

of agricultural credit societies and corporations in other countries and the passage of State and Federal laws for the establishment and capable supervision of organizations having for their purpose the loaning of funds to farmers.

As a further result the United States Congress on March 4, 1913, passed an amendment to the agricultural appropriation bill authorizing the President to appoint a commission of seven to cooperate with the commission of the Southern Commercial Congress. The President appointed Senator Fletcher chairman and six other members as follows: United States Senator Gore, of Oklahoma; Representative Moss, of Indiana; Dr. J. L. Coulter, of Minnesota; Dr. Kenyon L. Butterfield, of Massachusetts; Hon. Harvie Jordan, of Georgia; and Hon. Clarence J. Owens, of Maryland. This was known as the United States Commission. Senator Fletcher was also chairman of the commission of the Southern Commercial Congress, which was known as the American Commission, and which, as finally assembled, consisted of delegates from 35 States and delegates from five provinces of Canada who had asked permission to join the movement. The delegates from Texas on the American Commission were Honorables Charles B. Austin, W. W. Dexter, S. A. Lindsey, Clarence Ousley, J. S. Williams, and Francis W. Wozencraft. Judge Lindsey was made one of the vice chairmen of the American Commission, a signal honor most justly deserved. The two commissions sailed together from New York on April 26, 1913, and returned July 25, about three months later. They so systematized their efforts that they visited in a body or through subcommittees 17 countries, as follows: Italy, Egypt, Hungary, Austria, Russia, Germany, Switzerland, Belgium, Holland, Denmark, Norway, France, Spain, England, Scotland, Wales, and Ireland, and accumulated the largest mass of original evidence on rural credits and other forms of agricultural cooperation now available in this country. This evidence was translated into English and embodied in Senate Document No. 214, Sixty-third Congress. From the American Commission came a majority and a minority report, both of which were published as Senate Document No. 261, Sixty-third Congress.

The majority report pointed out that it took a half century for the present system of rural credit to develop in Europe, and said that while we should not need so long a period for its development here, we should not rush into a similar system without caution and deliberation. It stated, however, that the European methods should be given every trial, and that as soon as possible. It gave the usual arguments against rural cooperation in America and then said that practically all these difficulties once existed in European countries and yet had been overcome. It stated that European experience and European advice were that cooperative credit preceded and stimulated all other forms of cooperation. It then made certain observations regarding the practical necessity for cooperative credit in the United States which were so timely and so applicable that I desire to quote them bodily. They are as follows:

> The European experience seems to indicate that the cooperative form of furnishing credit is likely to be the ultimate method in America for the very simple reason that credit will be furnished by private, joint-stock, financial institutions only for profit to the institution, whereas under cooperative credit the members get the profits. Moreover, it is difficult for a great financial system to adapt itself to the needs of the men of small means; but it is they who are

most numerous and in the long run most important. Hence, there should be furnished opportunity and encouragement for the development of cooperative institutions intended to supply credit to the farmer—that is, institutions for members rather than for outsiders. This observation applies both to the question of long-term credit and the question of short-term credit.

As to government aid, the majority report laid down the rule that the Government should do nothing that could effectively be done by individual farmers, or by the farmers collectively through voluntary effort, but contended that the Government should assist liberally along lines of information, education, advice, and demonstration. The majority report discussed practically all other forms of rural cooperation, as well as that of credit, and recommended a national council of agriculture and country life, composed of delegates from State councils and national agricultural organizations, the State councils to be composed of delegates from county councils and State agricultural associations, the county councils to be composed of delegates from precinct and township councils.

Thus, it was believed, all rural activities might be correlated and all rural problems properly considered and determined. The majority report recommended Federal farm land banks, either on a joint stock or cooperative plan, and recommended that the States take jurisdiction of cooperative societies for short-term, personal credit in the event existing financial institutions should fail to grant the farmer more liberal facilities. It also recommended the formation of a voluntary national committee to suggest the next step in the rural progress of the nation.

The minority report of the American commission was signed by six members, including Hon. J. S. Williams, of this State. It strongly opposed the recommendation of the majority that the cooperative system should be tried out at present in the United States. It contended that the habits, characteristics, and surroundings of the American farmer made cooperative credit impracticable at present and that the large number of what is called country banks gave the farmer ample accommodation. It said that European farmers lived in small farm villages where they were in constant touch, where the same families lived on the same farms through generations, where the average holding was only a few acres, where the people were of the same race, religion, temperament, and ideals, where there was a large blood relationship resulting from stationary population, and that these things made cooperation practicable. It said, on the other hand, that American farmers are constantly moving in large numbers from one section to another, especially the tenants; that the American farmer never knows that "his neighbor of to-day will be his neighbor of to-morrow;" that often in the same community are representatives of different races and religions; that the American farmer is traditionally opposed to becoming responsible for others; that he does not intermingle with his brethren to such a degree as do the farmers of Europe; and that these things make cooperation especially difficult. The minority report intimated, however, that it took its position, not for lack of confidence in the cooperative spirit, but for lack of the proper development of that spirit by the American farmer. Let me say here that American farmers, through fraternal beneficiary orders, have already applied the principle of cooperation to life insurance with conspicuous success, and thus have already laid an excellent foundation for extending that principle not only to credit but to every other phase of agriculture. Through the local associations of these great, self-governing, nonprofit insurance orders they have established organic units of rural community life where brotherhood is already a vital and uplifting force. The minority report concluded by recommending a system of mortgage associations connected with the so-called country banks and affiliated with State centrals authorized to issue bonds based on the mortgages taken by the locals.

The United States Commission made its report to Congress early in 1914, recommending the Fletcher-Moss bill, before described, and remanding the question of cooperative short-term, personal credit associations to the States, holding that conditions and needs differ so widely in the various sections of our country as to make national action as to short term current credit inadvisable. It recommended that the minimum capital of national banks should be $2,000 instead of $25,000 in towns with not more than 2,000 people, such banks to be known as national rural banks, those with less than $10,000 of capital to do business only with shareholders, any five or more of these so-called rural banks with an aggregate capital of not less than $50,000 to have the right to form a national bank to be incorporated into the Federal reserve system with its rediscount privileges. This may be recognized as an attempt to adapt the Schulze-Delitzsch system in modified form to small American towns and might result in benefit to townspeople and adjoining farmers. The commission presented no bill in this direction. While this proposal is worthy of further study, and possibly of adoption with certain additional modifications, it does not meet the problem of cooperative credit for rural communities exclusively, under a system developed and controlled by farmers alone.

Numerous other bills purporting to deal with agricultural credit have been introduced in Congress providing for direct or indirect loans by the Federal Government on land mortgages, and also providing for land-mortgage banks, but no bill has yet been introduced applying the pure, cooperative principles either of the Raiffeisen or Landschaft systems of rural credit. Shortly before the close of the last Congress I introduced a resolution calling attention to the fact that no bill for cooperative, rural, short term, personal credit had been presented, and authorizing the Senate and House committees on agriculture to make a judicial examination of all bills in connection with the subject that might be presented to them before the assembling of the next Congress, to give all interested parties the rights of representation by experts, and to report to the new Congress next December. Several members of the House introduced similar resolutions. While no resolution of this particular character was adopted, still provision was finally made for further investigation of rural credits by a committee of Senators and Representatives during the year.

It should also be stated that shortly before Congress closed the McCumber bill providing for Government-guaranteed bonds based on farm mortgages to the extent of 10 millions of dollars, and the Government issuance of such bonds in any further amount so long as they commanded sale at par on their own merits, was attached by the Senate to the agricultural appropriation bill. When this appropriation was returned to the House the McCumber measure was stricken therefrom and the Hollis-Bulkley bill substituted. In the conference between Senate and House on the agricultural appropriation bill the Hollis-Bulkley measure was eliminated, and so the effort to amend this bill by adding a bill for Government mortgage loans failed.

It should also be mentioned that during the closing hours of the last Congress Senator Fletcher stated before the Senate agricultural committee that while the United States Commission had recommended that the question of cooperative credit unions for current farm needs should be relegated to the States, still the commission desired to investigate the question further. At Senator Fletcher's request the unexpended balance of the amount originally appropriated for the United States Commission was made available for another year, and that the commission is presumably making further study.

Let it also be noted that the agricultural appropriation bills for the last few years have carried specific sums for an investigation by the Agricultural Department of cooperative rural credit and all other forms of agricultural cooperation. The department has made a careful study of this entire subject, and it is now prepared to advise communities and individuals of the results of its labors, as well as to assist in definite action. That the principle of cooperation is making progress in this country is shown by the statement of the Secretary of Agriculture in his last annual report that the Office of Markets in his department has a record of more than 8,500 marketing associations, of about 2,700 cooperative and farmers' elevators, of 2,500 cooperative and farmers' creameries, of more than 1,000 cooperative fruit and produce associations, and that the reports to that office indicate that over a billion dollars' worth of agricultural products are marketed every year by the cooperative method. The Secretary states in this report that the need for legislation, either State or Federal, authorizing and encouraging local cooperative associations for rural credit is recognized by students of the subject; that those societies are needed most by small farmers who lack individual credit resources; and that the feature of unlimited liability is by no means a final obstacle because in many sections the liability of the small farmer is already unlimited.

Let it also be said that a national rural credit league, with headquarters at Washington, has been founded by prominent representatives of rural thought for the purpose of developing a suitable rural credit measure at as early a date as possible.

My own view is that both as to long-term mortgage credit and short-term current credit the nearer our methods approach the true cooperative principle the more successful we will be; that the German system of mutual, long-term land credit, as embodied in the Landschaften, and the German system of mutual, short-term rural credit, as embodied in the Raiffeisen societies and to a certain extent in the Schulze-Delitzsch organizations, are the purest types of cooperative credit yet devised. It is my belief that the principles underlying both these systems may be applied in the United States; that it is possible to work out an effective Landschaft plan in harmony with the essential features of the homestead principle; that if German farmers, French farmers, Italian farmers, and the farmers of many other nations can organize in such manner as to obtain the credit essential to their independence and prosperity at 3 and 4 per cent, American farmers can do so too. Do you say that capital is not available in the United States on such terms? I tell you that the mutual savings banks of the country contain 4 billions of deposits on which they pay less than 4 per cent. Depositors in New England have loaned these institutions over a billion and a half dollars at 3.9 per cent; those in the single State of New York nearly a billion and three-quarters at 3.75 per cent. In ordinary times billions of dollars are invested in bonds and other securities netting the investor only 3 and 4 per cent. In 1914 the 64 billions of dollars invested in the capital of all corporations doing business in this country produced a net income of only 4.3 per cent. Insurance actuaries figure from the experience and observation of more than a hundred years that 4 per cent per annum is the highest average return money may be expected permanently to bring. And yet the farmer, whose processes and properties under proper mobilization constitute the best security on earth, must pay 8, 10, 15, 20, and sometimes 30 per cent for working capital. I say that such a condition is at once the most damaging and most damnable in our civilization. It bodes no good for this Republic when the man most essential to its prosperity is the man whose own prosperity is the most precarious.

I agree with Mr. W. S. A. Smith, whose success as a farmer caused him to be offered the position of adviser to the Agricultural Department at Washington on farm management, that the most pressing present need of the farmer is a line of credit adapted to his productive processes, or, to use his own words, "Something between a six months' note and a five-year mortgage," or, to use my own words, something that the present Federal reserve act does not and can not provide for because, being adapted fundamentally to the present profit banking system, it can not safely admit paper to rediscount running longer than six months. It is Mr. Smith's opinion that we are not yet in position to have long-term mortgage credit for the reason that our wasteful American methods of cultivation will cause the security to grow less valuable through the years and therefore make it too doubtful to justify the long-term credit of 30, 40, or 50 years. He says that in this new country we are still mining the soil, not farming it. Undoubtedly a system of short term, personal, current credit will do more than anything else to bring about the best methods of soil enrichment, of farm improvement in general, a better rural life from every standpoint, and a firmer basis for long-term amortized mortgage credit than now exists.

We must bring the farmer into touch with the investors of billions who are contented with 3 and 4 per cent, and in my opinion it will take a cooperative credit system to do it. The farmer would be more than justified in offering these investors his securities even at 5 per cent to begin with. I believe that the system most needed here at the present time is one combining the distinctive elements of the German and French plans of short-term rural credit, embracing the deposit feature of the former and the bill of exchange feature of the latter. I believe that the National Government should authorize, supervise, and aid the American system of rural short-term personal credit. Every local should be a part of a national system, in order that its credit may have a national standing, a national circulation, a national, yea a world, market. Local credit unions have already been authorized by law in Texas, Wisconsin, New York, and Massachusetts. The Texas law limits the time of loans to eight months, thereby destroying one of the essential elements of successful rural credit. Only in Massachusetts have societies been formed pursuant to a rural-credit union law. There the law was enacted in 1909, and by 1913 34 unions had been organized, with a total membership of 4,529 and outstanding loans to the extent of $146,740. The rural-credit union law of Texas seems to be as lifeless as the paper on which it is written. The Jewish Agricultural and Industrial Aid Society has organized credit unions in different parts of the United States, which had in 1913 an aggregate membership of 517, an aggregate capital of $9,165, and outstanding loans of $73,625.66. These facts strengthen the conviction that national organization is required if the benefits of a rural-credit system are to be most highly and widely developed. The paper of an isolated local in a remote precinct in some county would never become sufficiently established to command a ready sale in the money markets of the Nation. The National Government should take the initiative because it is the one agency capable of effecting a national mobilization of farm credits which would command the confidence of the country within a comparatively short time.

Let the locals composed of farmers in a given district and loaning only to members, with a small entrance fee, small annual dues, and perhaps a small share capital drawing interest at a rate equal to that of the loans, approximate the Raiffeisen system as far as practicable. Let the locals be coordinated with a State association which they own and control, and let the State associations own and control a national association whose purpose shall be to underwrite and assure a market for the obligations of the locals. Let the entire system be managed primarily by delegates from locals to State associations, and from State associations to the national, in the manner outlined by the national creative act. Let the Government equip the national association by advancing it a guaranty fund without interest, to be apportioned among State associations at the rate of one dollar for every dollar of capital subscribed by the locals or otherwise, a similar proportion to be retained for the capital of the national. Let the State associations have such a capital as will enable them to do the work of equalizing the surplus and other conditions of the locals, of making them loans when necessary, of discounting their bills, and meeting such of their other needs as the State associations should logically supply. Let the locals do a deposit and loan business limited to the smaller transactions of members, and for larger ones let the members draw bills to be indorsed by the locals, which always take proper security, said bills to be presented for rediscount to the State associations and by them in turn to the national with their own indorsements added. The national attaches its indorsement as well and puts them on the market. The national should have sufficient resources to absorb them itself, if necessary. In this way paper based on loans by locals to members would have a national basis and a national recognition, and would become as synonymous with safety as a Government bond. It is possible that the intermediate central associations might be apportioned among homogeneous farming areas rather than States, and that thus their number might be lessened. In addition to the stock regularly subscribed by locals and State associations, let any individual or firm have the right to take stock, becoming a founder to that extent, but never to the extent of interfering with farmer control. The idea of minimum expense should permeate the entire system, the only salaried officers being those actually handling the funds. The president of the national association and of the whole system should be paid a salary by the Government. If the Government pays the salaries of the Federal Reserve Board for superintending a scheme of commercial banking, surely it should pay the salary of the head of a national rural-credit system. Perhaps it should pay the salaries of the national directors of the latter also.

Such is a mere tentative outline of a possible plan. Many details are, of course, to be supplied to make the system workable. With a share of capital of a little more than 5 million dollars, the rural locals of Germany granted loans of over 214 million dollars in a given year; their provincial centrals, with about the same capital, granted loans to locals of over 42 millions, while the national central, with a capital of 2 millions, loaned to locals and provincials about 20 millions. Thus, with 12 millions of capital the German personal rural-credit system negotiated 276 millions in loans in a year, multiplying every dollar of capital into twenty-three dollars of loans, these loans carrying an average interest rate of 3½ to 4 per cent. Compare this showing with that of our national banks, which multiply one billion of capital into six billions of loans. If a million and a half German farmers could accomplish such results, what may not the six and a half million American farmers do in the same direction? If the Prussian Government could grant an advance of 18 millions of dollars without interest to the Prussian Central Bank for the purpose of supplying funds to cooperative societies, surely this far richer Government could grant a noninterest-bearing loan of, let us say, 65 millions for the same purpose, especially when every dollar advanced is to be matched by another dollar subscribed. The Government could make this advance with a 3 or 4 per cent bond issue, and it would be the most beneficent loan ever negotiated. It would represent less than two-thirds of what the Government spends every year on the Army or on the Navy. For a little more than the cost of four first-class battleships this Government could vitalize a system of rural credit that would ultimately bring millions of dollars to the farmer at a strikingly low interest rate and give an infinite impetus to the material growth of the country. The State associations and the national should be made fiscal agents of the Government, with the privilege of receiving Government deposits, and the paper of this rural system should be made a legal investment for trust funds held by United States courts, as well as for time deposits in national banks.

The chief difficulty in securing any comprehensive measure for the relief of American agriculture lies in its lack of national unity. The immense number of American farmers, the wide range of agricultural territory, the different conditions affecting the various sections, the absence of an authoritative expression of what is desired for agriculture as a whole, all make it a momentous, almost hopeless task for the National Legislature under present circumstances to apply effective action. The American commission had this situation in mind when it advocated a national council of agriculture and country life. I believe that such an organization should be chartered by the Federal Government for the purpose of enabling it to determine the needs and wishes of the agricultural element of the Nation—the organization to have only advisory functions so far as the Federal Government is concerned. If the power of the Federal Government to issue such a charter should be questioned it could be granted under the laws of the District of Columbia. On account of the size of the country, the enormous rural population, and the general magnitude of the task, such an organization could hardly be accomplished by private initiative. Several farmers' associations of highest aim and character, purporting to be national, are already in existence, but they do not begin to embrace the entire agricultural population. The mere fact that the Federal Government undertakes to supervise a national organization of agriculture will give the movement an attention and a momentum among the farmers themselves that can not, under present conditions, be otherwise secured. Such an organization should interfere in no way with those now in operation. On the contrary, it would give them a sympathetic and powerful medium for the submission of their views to Congress and the State legislatures. It would give agriculture a semiofficial national voice, and the effect could not be otherwise than beneficent. It would focus attention on rural credits and other farm problems from a nation-wide viewpoint, and the result would represent the best thought of a united agriculture. Other elements of our people are either gathered in the towns and cities where association may be easily achieved, or have such small numbers or such centralized operation that organization may be readily secured. Thus they may present to Congress and the Nation a concerted program at almost a moment's notice. The first instance is illustrated in the successful organization of industrial wage earners. By virtue of an effective, nation-wide organization they have obtained legislation of highest value to themselves and to the country. I would limit the expense of the national association to the travel outlay of delegates from precinct to county meetings, from county to State, and from State to Nation to the payment of such salaries as might be deemed proper and to the employment of such clerical force as might be found necessary. I would have existing organizations represented in all these meetings. I would supply the necessary funds with dues from members supplemented by an equal contribution from the Federal Government. I would make the Secretary of Agriculture honorary president, and I would, through him and his Office of Markets, institute at once, in cooperation with this great rural body, a clearing house of information regarding markets, production, consumption, and the like. In fact, I would make the assembling of data as to consumption of farm products, both in this country and abroad, one of the principal objects of the national council, and in this work I would enable the council to utilize all our representatives abroad. The market and information feature of the association would alone repay the cost of conduct and inauguration. The very valuable resolution of Congressman Goodwin of Arkansas for a national marketing commission, backed by an effective organization of States, counties, and localities, is a step in the right direction. I believe, however, that when we once establish a national organization it should contemplate a study of all agricultural problems. Let us not forget that agricultural cooperation must be viewed as a harmonious whole, that rural credit is but one phase of the movement for the organization of all rural effort. Recognition of such facts has led me to discuss national organization in connection with rural credit. Many notable efforts to organize agriculture along special lines have failed because the element of coordination with a general, all-embracing movement has been overlooked. It is my intention to introduce bills for a system of rural credits and for a national council of agriculture along the lines I have indicated at the opening of the next Congress, or as soon thereafter as practicable.

Let me tell you that the most critical feature of the whole rural problem is found in the two and a half millions of tenant farmers, that growing multitude of homeless men. With their families they already comprise nearly half the entire farming population. That they are the victims, not the makers, of conditions can not be denied. To hold otherwise would be to indict Almighty God. They are fashioned from the same clay as are other men, with the same motives, virtues, aspirations. The vision of a home where loved ones may be sheltered and age discover peace is as sweet to them as to other men. The maintenance of their families, the education of their children, the enjoyment of the usual comforts and diversions of life mean as much to them as to other men. Their fate is fundamentally interlinked with that of civilization. A credit system signifying financial independence for the tenant farmer will do more for this Republic than any human mind may measure.

Establish cooperative credit in rural communities and organization along other lines of farm effort will logically follow. Cooperative buying, cooperative production, cooperative farm insurance, cooperative leasing, cooperative selling, cooperative holding in order that markets may not be suddenly glutted and beaten down, and all other forms of united action find a basis and an impetus in cooperative credit that can not elsewhere be obtained. Cooperative credit is the vital and primary step in the movement for the organization of rural life which I trust and pray may sweep this Republic within the next five years. It is true that many cooperative farm enterprises have already been developed, principally along the lines of storage and marketing, in certain sections, but the general and permanent advent of cooperation in all phases of farm endeavor will ultimately depend upon the readily available funds of a cooperative credit system where interest and expense are reduced to the lowest possible degree.

Establish cooperative credit in rural communities and the exodus to the cities and the towns will be reversed. Civilization rests on credit and people are driven by necessity to occupations and localities where that fountain of economic existence may be most readily reached. The city of New York owes its greatness to the fact that it is our chief source of credit. Cooperative credit will hold in rural localities for their own development funds which are now concentrated in New York and other centers, adding to their already overshadowing influence. Also it will cause to be utilized capital that would otherwise remain in hidden places and would never reach the commercial bank. It will create a credit instrument of such soundness, it will constitute so efficient an addition to the circulating medium that its very presence will give new strength to the financial and commercial fabric of the Nation. It will create a new and abiding interest in rural enterprise, a source of business identity and importance in rural districts. It will bring new hope and dignity to the humblest man who now extracts a reluctant sustenance from the soil.

The existence of this Republic and the integrity of its institutions depend in the last analysis on an independent and prosperous farm population. A declining agriculture means a falling nation. To make rural life a source of happiness and wealth and pride, to surround it with all the comforts and facilities of modern invention, to place farming on an equal footing with other professions, to give it a system of finance by which its latent resources may be most highly developed, and its productive processes made the basis of a permanent credit, to give it a dignity corresponding to its supreme importance, to convert tenants into owners, to adopt measures leading to such enrichment for the land, such attractiveness and glory for the farm that young men and women will look forward to farm careers as to goals of honor unsurpassed, pinnacles of ambition unexcelled—all these compose a project that well may exercise the profoundest capacities of the statesman, the loftiest emotions of the patriot.

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WHAT CONGRESS HAS DONE TO BUILD UP AN AMERICAN MERCANTILE MARINE

ADDRESS

BY

DUNCAN U. FLETCHER

UNITED STATES SENATOR FROM FLORIDA

AT THE DINNER OF THE ACADEMY
OF POLITICAL SCIENCE, NEW YORK,
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ADDRESS BY DUNCAN U. FLETCHER, UNITED STATES SENATOR FROM FLORIDA, AT THE DINNER OF THE ACADEMY OF POLITICAL SCIENCE, NEW YORK, NOVEMBER 12, 1915.

In 1783 Mr. Pitt introduced a bill in Parliament allowing comparatively free commerce between the United States and the British colonies—more especially the West Indies. Lord Sheffield led the opposition and advised the British Government not to interfere too extensively with the Barbary pirates, who, because of our insufficient naval force, were in position to continue operations to destroy American commerce. He published a book in 1783, entitled *Observations on the Commerce of the United States*, which passed through at least two editions, in which he said:

> The Americans can not protect themselves (from the Barbary States); they can not pretend to a navy. In war New England may have privateers, but they will be few indeed if we do not give up the navigation act. * * * The want of durability in their timber would make a navy most expensive to them. A country which has such opportunity for farming can not be supposed to support many seamen. There is not a possibility of her maintaining a navy. That country concerning which writers of lively imaginations have lately said so much is weakness itself. Exclusive of its poverty and want of resources, having lost all credit, its independent government, discordant interests, and the great improbability of acting together, the circumstances alone of such a vast country, with a third less of people than that small spot in Europe inhabited by the Dutch, are incompatible with strength. Her population is not likely to increase as it has done, at least on her coast. On the contrary, the present inhabitants are likely to fall back on the interior country to get better land and avoid taxes; and that they may in some future age become numerous as a country of farmers, without markets, can be expected; but the settlers beyond the Allegheny Mountains can not become commercial.

Just to indicate how wide of the mark this guess was we might pause to note that the country which was said to be "weakness itself" now has a population of a hundred million and a national wealth of $188,000,000,000—nearly as great as the wealth of Great Britain, Germany, and France combined. The Comptroller of the Currency, in a recent admirable address, stated: "The total annual income of the people of this country from agriculture, from mining, from manufactures, from transportation, from fisheries and other productive occupations is now estimated at $30,000,000,000 per annum." He places the deposits in the banks of this country—National, savings, and State, including trust companies—at approximately $23,000,000,000, an increase of $14,500,000,000 since 1900. Our financiers have just loaned the nations of Europe a sum far in excess of any sum ever loaned at one time by any nation to another or combination of others. Since August, 1914, we have paid to Europe a floating debt of $350,000,000, and have taken up securities held there for investment to the amount of between $750,000,000 and $1,000,000,000. But the lamentable fact is that we are situated and are acting with reference to our mercantile marine in overseas trade very much as might be expected from that description of us by Lord Sheffield.

The total number of steamers owned by all the nations of the world on June 30, 1914, was 30,226, and the amount of the world's steam tonnage was 45,403,877 gross tons. Of this there were registered in the United Kingdom 8,587 steamers, totaling 18,892,089 tons, over 40 per cent of the total tonnage of the world. Under American registry were 1,076,152 tons—a little over 2 per cent of the whole. Since the outbreak of the European war approximately 9,000,000 tons of merchant shipping, about 20 per cent of the whole, have been destroyed, captured, commandeered, or otherwise put out of the merchant service. The rates of freight were never so high, the profits of the business were never so great, the demand for tonnage was never so insistent and pressing as now.

How will the need be supplied? We are told that private capital is supplying it for this country, and, as evidence of this, our attention is directed to the increase of work in our shipyards. Let us see to what extent ships are being built to engage in foreign commerce and whether the necessities of our situation are being approached. Analyze the tonnage under construction in American shipyards, as recently reported, and you will find it comes substantially to this:

MERCHANT VESSELS.

30	oil tankers, D. W. tonnage	264, 935
3	mollasses tankers, D. W. tonnage	17, 400
8	colliers, D. D. tonnage	32, 475
6	lumber steamers, D. W. tonnage	22, 500
7	combination freight and passenger steamers, D. W. tonnage	26, 200
13	freight steamers	64, 800
62	barges, lighters, scows, etc., D. W. tonnage estimated	50, 000
7	sailing vessels, D. W. tonnage	13, 620
7	tugs, D. W. tonnage	1, 500
2	yachts, D. W. tonnage	1, 800
1	floating hospital, D. W. tonnage	1, 000
146	Total	496, 230

Five of the oil tankers, 26,400 tons, are being built for foreign owners. Of the general cargo boats only two are intended for strictly foreign trade, to wit: One vessel being built for W. R. Grace & Co., and one for Hind, Rolph Coal & Navigation Co., although the latter may be used as a collier. This total tonnage is 14,000. I am considering the three boats being built for the Munson Steamship Co. and one for the New York & Cuba Steamship Co., as being intended for the Cuban service, which is generally regarded as coastwise trade, although technically it is foreign. The total tonnage of these four boats would be about 18,300 tons. Two of the cargo boats in the list are intended for the Great Lakes, two for Puget Sound, and one for Delaware Bay. All the other general cargo boats are intended for the coastwise trade except a 9,000-ton vessel being built by the Union Iron Works for their own account.

supposedly for speculation. It is very doubtful if any material number of the vessels built for coastwise trade could be used in the oversea trade because of insufficient bunker capacity, to say nothing of other features of their construction.

Under construction in American shipyards the total number of Government vessels are 81, of which 69 are for the United States and 12 are for foreign governments. The cost of the work being done for the Government is far in excess of the cost of the work being done for private owners. In addition to new work, our shipyards are doing repair work on 207 merchant vessels of all descriptions.

Out of all this extraordinary crowding of the yards the net result is that we have under construction three general cargo steamers intended for foreign trade, giving a total of 23,000 tons—considerably less than one-half the tonnage of one German vessel tied up in New York Harbor, the *Vaderland*. Does this look as if private enterprise were taking care of the situation?

Compare what has been done in the United States with what was accomplished in some other countries—in Germany, for example. The whole sea-going steam merchant marine of Germany is of iron and steel, and comprises a relatively large number of the largest, fastest, and most powerful steamships in the world. The two largest, wealthiest, and most powerful single steamship companies in the world are the Hamburg-American Co. and the North German Lloyd. The former is opposed to any subsidy. The latter enjoys a subvention of insignificant amount compared to tonnage and service, and compared to what we pay under our mail-contract law. Not until after 1880 did Germany begin to build her steamers. In 1870 it became imperative for the consolidated German Empire to build and equip a navy in its own shipyard. The demonstration there made gave the ship companies confidence and they began building at home, withdrawing most of their former patronage from the British constructors on the Clyde and Mersey. The merchant marine of Germany is under the general supervision of the Department of the Interior.

There are seven German shipping companies, which together have a total of 3,510,000 gross registered tons. There are in all 43 German shipping companies with more than 20,000 gross tons each. The service has developed a specialty in the establishment of regular lines, and until the war there was line traffic connecting Germany with every part of the world possessing any commercial significance.

In return for the little aid that was extended to the North German Lloyd, the company agreed to (1) fix upon certain termini; (2) establish certain routes, with certain stops; (3) establish branch lines; (4) raise maximum speed to 13½ knots per hour and make all new steamers for this service not less than 6,000 tons; (5) pay heavy penalties for failure to carry out the contract. By this contract the foreign commerce, national influence, and progress of Germany were carried to East Asia, Australia, East Africa, and the Mediterranean by separate lines.

The Hamburg-American Line alone, at the beginning of 1913, embraced 74 regular steamship lines. It owned 192 ships, with a gross registered tonnage of 1,254,000. In 1911 this line carried 403,000 passengers and 7,990,000 tons of freight. The next largest company—the North German Lloyd, at the beginning of 1913, possessed 133 ships, with an aggregate of 821,000 registered tons. In 1911 the line moved 514,000 passengers and 3,590,000 tons of freight.

On June 30, 1915, there were 2,794 vessels of the United States of 1,813,775 gross tons registered for foreign trade. Of this number 26 steamers of 147,070 gross tons belonged to the Standard Oil Co. (New Jersey); 24 steamers of 113,243 gross tons, to the United Fruit Co.; and 10 steamers of 48,271 gross tons, to the Steel Corporation; total for the three, 60 steamers of 308,584 gross tons. These totals subtracted from the general total above leave for all other owners 2,734 vessels of 1,562,950 gross tons. One single German line in 1914 nearly equaled all our foreign-trade tonnage.

The Standard Oil ships are tankers, built particularly to carry oil in bulk, and there export trade is practically confined to oil. On the return voyage these steamers sometimes carry small amounts of miscellaneous imports. The United Fruit Co.'s ships are specially built ships with refrigerating apparatus, and their import cargoes into the United States consist almost wholly of bananas and other tropical fruits. They export from the United States large quantities of miscellaneous general cargo, and the company's steamers are the largest transportation factor in the export trade of the United States to the countries of Central and South America and the West India Islands, with which the steamers trade. Many of these steamers do a large general passenger business. They carried 700,000 tons of general export cargo from the United States last year.

As to the cargoes of the steel corporation ships, my understanding is that in addition to steel products and raw material for steel manufacture, these ships also engage in general commerce. I understand that they operate only a freight service to the west coast of South America and their only passenger boat, the *Crofton Hall*, to Brazil and River Platte ports.

The cargo boats of the New York & South American Steamship Co. and the *Crofton Hall* are the only American vessels in the South American trade, excepting the United Fruit Co.'s ships to Colombia, which are generally classified with the Central American trade.

This is our situation, while for the year 1913–14 our imports by water amounted to $1,737,708,653 and our exports to $2,047,759,859, and for the year 1914–15 (ending June 30, both years) our imports amount to $1,526,269,412 and our exports to $2,466,356,063. Ships under British flag are our main reliance for enabling us to do this business. Yet such ships under existing conditions are likely at any time to be requisitioned for Government purposes, and the British Government has recently materially increased its income taxes, of which shipowners must pay their share, and this will be reflected in further increases to the present staggering freight rates. Again, the British Government will not permit Americans to charter British ships. Did not the British Government recently, through its board of trade, take its entire tonnage away from Argentina and send the ships to Australia for cargoes and thus paralyze Argentina's trade in meat with depressing consequences in other trade?

Our position, then, is one of abject dependence on foreign ships for carrying the great bulk of our overseas commerce. It is imperative that we inquire, How are we to build up, not merely a merchant marine, but an American merchant marine? Not by having American citizens investing in ships sailing under foreign flags and owing allegiance to foreign countries. Not by having Americans invest in ships flying our flag but really owned and controlled by foreign interests. Nor yet by having ships of American registry largely or wholly owned by American citizens but in combination with foreign lines which will have the power to parcel out the routes and the business and fix the traffic rates.

An American merchant marine means, if there be any sincerity in the name, merchant ships having American registry, controlled by Americans, operated by Americans for Americans, independent of any supervision or influence by any other country or people. It should be ample in tonnage to carry the export and import trade of the United States. It should be operated efficiently and be forever free from foreign domination.

I do not know how this can now be secured except by governmental control. Even if individual enterprise could be developed sufficiently strong and effective to produce an adequate tonnage, private control of ocean transportation may serve the purpose to-day, and to-morrow may join foreign combinations in utter disregard both of investors and the public. The record of the past shows that this has frequently been done. That would mean that the United States, notwithstanding the nominal tonnage under its flag, was still dependent upon other nations for its ocean transportation. We ought to control our own.

As to private control, there are two great obstacles to contend with: First, the capital required to make even a small beginning runs into millions. Where is this capital to be had? Only great concerns like the Standard Oil Co., the United States Steel Corporation, and the United Fruit Co. can find the means. They are able to build the ships to carry their own goods to foreign markets. But the great number of producers in this country can not do it, each for himself, nor form sufficient cooperation to do it. The capital required, I apprehend, will be found to be controlled by those interested in maintaining the situation as it is—with practically no competition.

Second, the independent line, when established, is in danger of being confronted with rebates and other practices which may drive it on the rocks of despair. Fighting ships of the combinations have operated heretofore in that enterprising way and are likely to be brought into the same service at any time.

In the New York World for September 25 last appeared statements, including one by F. B. Boulton, president of the Federal Forwarding Co., who quite circumstantially charged that "a triple combination," consisting of the British Government, the Netherlands Oversea Trust, and the Holland-America Line, is operating so successfully that the profits of the Federal Forwarding Co. have been wiped out through the detention of their ships with valuable cargoes, even though the ships had been loaded and the manifests passed by British consular agents in the United States before the departure of the craft. Some independent companies charge that a fourth member, Lloyds', has been added to the combination. Mr. Boulton said:

> My company is openly fighting this Holland-America Line. We are giving lower rates, and we could make money at these rates if it were not for the detention of our cargoes.

This shows how little chance the average American has who tries to get into the overseas steamship business in competition with these interests, and argues most forcibly that an American merchant marine for the overseas trades, as distinguished from the coastwise trades, can only be successfully inaugurated by the Government.

Take another illustration. It appears that Brazil allows a reduction of duty of 20 per cent on American cement. That ought to insure us that trade. But what happened? A gentleman who has experience in that direction tells me:

> The Europeans by an aggressive propaganda in the press have educated South Americans to believe that North American cement is worthless, and as a result England, Belgium, and Germany have controlled the markets of those countries for that article. Kraemer & Co., of Rio, received samples of North American cement and decided to give it a trial. They ordered several thousand barrels which were distributed on arrival in Brazil and gave great satisfaction. As a result, Kraemer & Co. placed a big order for North American cement in the United States. The European cement manufacturers were not long in learning of this, and they immediately proceeded to arouse their Governments. As a result, the foreign European lines, operating from New York to Brazil, immediately raised the freight rates on cement, absorbing the preferentials given by Brazil, causing the cancellation of the order for American cement, thus compelling the Brazilians to get their supply from England, Belgium, and Germany.

This gentleman's view is:

> This is only one of the many object lessons which go to prove that reciprocity with South America, or any other country for that matter, amounts to nothing on paper, unless it is backed up by an American ocean transportation system owned and controlled by Americans and under the supervision of the Government of the United States just as our railroads are.

This experience, typical of what may be expected under existing conditions, and the conclusions urged should command consideration.

It would seem quite clear that we can no longer afford to be dependent upon others for practically the sole means of transporting our commerce. It is not unreasonable to say that their interests must control them, and we know their interests are not always our own. In times of national emergency certainly, and in ordinary times most probably, they will consider their interests first. There is no way we can care for the great and increasing foreign commerce of this country except by having in the hands of Americans the moving bridge between us and other countries. When foreign commercial competitors control the ocean transportation, what can the people of the United States expect?

Through lack of merchant vessels to carry its cotton abroad the South suffered a loss of over $200,000,000 last year. The farmers of the Northwest for the same reason suffered losses of millions. Phosphate could not be moved at all. Lumber and coal shipments were seriously limited. Our merchants and manufacturers likewise sustained heavy losses and thousands were out of employment who otherwise would have been regularly engaged if the United States had controlled ample fleets of American ships. On occasions we hear quite a little about our independence and freedom. On land the United States is a full-grown man; on the sea, a child in a rowboat without a life belt.

In transmitting the proceedings of the Pan-American Conference to the President, Secretary McAdoo says:

> There was unanimous opinion that two things are essential to the development of trade and improved relations between the Latin-American nations and the United States, viz:
>
> 1. The granting by United States bankers and business men of ample credits to Latin America and the prompt provision of the necessary organization and facilities for this purpose.
>
> 2. The prompt establishment of adequate steamship facilities between the leading ports of the United States and South America which the conference, by resolution, declared "a vital and imperative necessity."

No one wishes to stifle or hamper private enterprise; but it would be folly to close our eyes to the facts, and it would be inexcusable shortsightedness not to profit by most trying experiences. Those who contend shipping should be left to private enterprise admit that the ocean tonnage of the United States registered for foreign trade has declined from more than two and a half million tons in 1861 (2,642,628) to a little more than a million tons (1,076,152) in 1914. This tonnage, by reason of additions under the registry act of 1914, on June 30, 1915, reached 1,813,775 gross tons. The amount of tonnage entering and clearing at seaports from and to foreign countries has increased, of course, many times since 1861. It is nearly three times as great as it was in 1887. Whereas American ships under our flag carried 65 per cent of our commerce in 1861, they carried 9.7 per cent in 1914. The vessels of one foreign country alone, Great Britain, carried 53.7 per cent.

With these facts conceded, it is difficult to follow the logic of the argument which commits us to the course heretofore pursued as the best or the acceptable method of building up our merchant marine. The irresistible conclusion must be that by pursuing that course our flag will inevitably vanish from the seas, as it has been gradually doing during the past 50 years.

Our tonnage engaged in coastwise and inland trade has steadily increased for many years. On the Great Lakes especially is employed a fine and powerful merchant fleet—610 vessels of 2,352,264 tons. Its development has been most gratifying, and it is pleasing to note that without any subsidy or subvention of any kind there we have an example of the cheapest and most efficient means and method of taking care of water-borne commerce in the world. None but American ships can engage in this coastwise and inland trade, and these are exempt from tonnage dues. This has always been our policy and the law. We have no serious problem regarding our coastwise and inland service. There is no complaint of insufficient ships or inadequate service.

In speaking of merchant marine here we have reference to merchant ships engaged in the overseas trade. What laws affect these? We hear it averred by people who plainly do not know what our navigation laws are that they are antiquated and constitute a large factor in causing the decay of our merchant marine. The challenge to point out such laws has been met by silence or meaningless generalization. It is true that selfish interests did begin to make themselves felt in the making of the Constitution, and subsequently in absurd laws. Later, those who, in a mistaken way, thought they should benefit the shipyards, no matter at what cost to trade and commerce, by creating monopoly and giving high protection for their benefit, did write into statutes provisions which had the effect of harming the special industry they were aimed to benefit and seriously injuring shipping.

But away back in 1880 began a crusade to do away with these laws. and gradually as their bad effects became apparent they have crumbled until to-day the only feature of our navigation laws designed solely to protect shipbuilding and establish monopoly which remains on the statute books is section 4347 of Revised Statutes, providing that foreign-built vessels can not engage in the coasting trade of the United States. Even this does not, of course, affect the American merchant marine in the foreign trade.

Our first registry act (the eleventh law passed by the American Congress) was passed September 1, 1789, and restricted American registry to ships built in the United States or ships not built in the United States but belonging to citizens of the United States, on May 16, 1789. On December 31, 1792, Congress passed a registry law, more elaborate in detail, taking the place of the first and maintaining the same essential principles, excluding foreign-built ships from American registry. That was changed in 1912 and completely repealed in 1914, so that ships may be built or purchased anywhere and admitted to American registry for foreign trade, but, as heretofore, ownership of American ships is restricted to "citizens of the United States, or a corporation organized under the laws of the States thereof." But this has been held not to prevent foreign capital to an indefinite extent being invested in a corporation owning American ships.

Other laws provided that the master of an American ship, and all the officers in charge of a watch, including the pilots, must be American citizens. In 1914 Congress authorized the President by Executive order to suspend this requirement for a period of seven years, which he did.

Since 1871 foreign materials for shipbuilding have been admitted free of duty. Since 1909 such materials, as well as all articles necessary for the outfit and equipment of ships, have been duty free, with this proviso, that vessels receiving these rebates of duties "shall not be allowed to engage in the coastwise trade of the United States more than six months in any one year," except upon payment of the duties remitted; and that vessels built for foreign account and ownership shall not engage in this trade. The Panama Canal act of 1912 and the tariff act of 1913 provide for free materials and equipment for ships in the coastwise trade as well as the foreign trade.

The tariff act of 1913 (paragraph J, subsection 6) provided for a reduction of duties of 5 per cent on all goods imported in American bottoms. This provision is in question in the courts.

The only other law I can recall which might be cited as bearing on the subject is what is known as the seamen's law, passed in 1914, going into effect November 4, 1915, as to vessels of the United States, and March 5, 1916, as to foreign vessels, except such parts as conflict with treaties or conventions, and those take effect on the expiration of the period fixed in the notice of abrogation. This law is being vigorously assailed by shipping interests, but of course it has neither helped nor hindered American shipping in the past. It contains 20 sections. Shipowners insist on amendments changing one section and striking out three. Sixteen sections are generally approved.

But we hear very little of anything good in the law. I will refer to this law later.

For some years past steel ships have been purchased more cheaply abroad than at home. American capital purchased ships abroad and operated them under foreign flags. This was done by forming corporations in foreign countries—Americans holding practically all the stock—because all countries have required that the owner shall be a citizen or subject of the country whose flag the ship flies. The corporation, organized under the laws of a country, is regarded as such citizen or subject. Foreign-built ships owned by Americans in fact, but of record by foreign corporations, have about equaled in tonnage ships registered under the American flag for foreign trade.

The Democratic national platform in 1880 declared for "free ships and a living chance for American commerce on the seas and on the land." The Panama Canal act of 1912 was the first firm, direct step in the accomplishment of this end. Even under that, after many years of effort in that direction, only foreign-built ships less than 5 years old, owned by Americans, were enabled to raise their own flag. Section 5 of the Panama Canal act of August 24, 1912, allowed foreign-built vessels, steam or sail, certified by the Steamboat-Inspection Service as safe to carry dry and perishable cargo and not more than 5 years old, to be registered for foreign trade, including trade with the Philippines, Guam, and Tutuila.

In March, 1914, before there was even a rumor of a European war, Secretary Redfield asked for the passage of the registry act of August, 1914, which eliminated that limitation as to age and affirmed in full the traditional Democratic policy. This measure, enacted and put into operation during the present national administration, has been a distinct and undisputed success. It has brought, as already stated, our tonnage registered for foreign trade from 1,076,152 tons on June 30, 1914, to 1,813,775 gross tons in 1915. Of course, this does not mean that that much new tonnage has been built or acquired during that time by American owners. Most of this increase resulted from the transfer of American-owned ships from foreign to American registry, which the registry act allowed.

The Act of June 28, 1864, provided that "officers of vessels of the United States shall be in all cases citizens of the United States." Many vessels, otherwise eligible to registry under the acts of 1912 and 1914 above mentioned, carried officers who were not citizens of the United States, and these vessels desired to take American registry. The Dollar Line, with English officers, was among those enabled to qualify. Accordingly, pursuant to section 2 of the ship registry act of August 18, 1914, the Executive order of September 4, 1914, was issued, permitting alien officers on ships admitted to registry to serve until September 4, 1921.

It has been charged that our plan of tonnage measurement is unfair to ships under our flag. This, like certain other criticisms of the laws, is without justification. There is no need of any new legislation on that subject. The Commerce Department has made regulations practically adopting the British regulations as to measurement, so there is now no adverse discrimination in tonnage dues.

Some one may ask, "What about the seamen's law which went into effect on the 4th of this month?" I will give a few facts about that law. It has been so roundly abused in large part, if not wholly, unjustly, that great prejudice has been created against it. The mere mention of it has got to be as alarming as the mark of the beast in Revelation. It certainly has some admirable provisions and apparently few objectionable ones. Perhaps these can be improved or eliminated. It would have been fair to wait until the Department of Commerce had construed it and adopted regulations under it before indulging in violent denunciation. While we are getting it into operation and seeing how it works it may help the patience of our friends the shipowners to reflect on the old teaching of the vikings that "whoever was never wounded was never happy."

It has been claimed for years, I believe, that by reason of some laws or regulations respecting seamen on our ships the cost of operating under our flag is greater than under foreign flags. These laws or regulations have to do with the number, the accommodations, and the food of the crews on each ship. It is also claimed that American crews demand higher wages than crews on foreign ships. It is now claimed that the seamen's law will increase this difference in operating expense to our disadvantage.

In the first place, I have no sympathy with those who ask that sailors on American ships be put on a level as to wages and treatment with the seamen of certain other countries. In the next place, if we are to ever have a naval reserve, we should have trained seamen to man the vessels. We must make it worth while for our young men to go to sea. In time of trouble it would be a hazardous situation for us to be dependent on foreigners to man our vessels and fight for our flag. Their native land might be involved and such seamen might refuse or do worse. Suppose the seamen's law does subject the lines to some extra expense; they could scarcely feel it. Refer to the statement in the New York Journal of Commerce of October 27 last, under the heading "Mercantile Marine Makes Large Gain in Earnings." Among other things, it says:

> At the current estimated rates of earnings the International Mercantile Marine is earning net profits of between $65,000,000 and $70,000,000 per year.

The wages of crews for American ships can not very well be reduced by any legislative act. The only practical alternative is to endeavor by legislation to make a free market in American seaports for the hiring of seamen. Heretofore, if a seaman arriving in an American port on a foreign ship left the employ of his ship, he was arrested as a deserter and returned to his ship. This sort of servitude exists in no other vocation. The seamen's act does away with this. Hereafter seamen arriving in American ports may leave their employment without fear of arrest, though they will forfeit half their wages. This great addition to the supply of available seamen for American ships must tend to reduce the seamen's wages on American ships, if unduly high. At the same time it will cause owners of foreign vessels to increase the wages of their seamen to keep them from leaving. As a result, seamen's wages on American vessels and foreign vessels will become equalized. I find that the strongest objection to the seamen's act on the Atlantic coast comes from foreign shipping interests. As to the action of the Pacific Mail abandoning their trans-Pacific service, it would take too much time to go into the subject fully, but I may assure you that there is nothing in the seamen's act which necessitated their action. Mr. Justus

Wardell, surveyor of the port of San Francisco, has just made a report in which he shows that on every trip which the Pacific Mail steamers *Mongolia* and *Manchuria* made the Pacific Mail Co. cleared $128,000 net. Each of these steamers made about eight trips a year. Surveyor Wardell reports that a Pacific Mail official stated to him that compliance with the seamen's act would have necessitated changes in the engine room only. These changes, Surveyor Wardell reports, would have cost the Pacific Mail only $1,000 a month extra. Figure it out yourself. Net annual profits of each ship, $1,024,000. Increased cost of operation on account of the seamen's act, $12,000. The fight on the seamen's law assumes the attitude of a contest between the decent instincts of man and his gainful appetites. There are those who say that the Pacific Mail quit because they had to make good on their original announcement in view of the furore that the press had made over it. At any rate, they were able to cash in a good big profit on the transaction, sufficient to more than double the market price of the company's stock. It is said that one of these ships loading on the Pacific coast will earn two-thirds of her cost on the single voyage to Europe. Although they absolutely abandoned their patrons who furnished all the business they could take care of and turned the bows of their ships from the Pacific to the Atlantic, sold and transferred them, they are still operated under the American flag, and the seamen's law applies as well in one ocean as the other. This kind of thing emphasizes the view that we are confronted with an absolute necessity that some agency shall right now provide steamship service under our flag between the United States and foreign countries.

It will not be denied that we have to-day—and they may pass soon if not taken advantage of—marvelous opportunities for extending our trade throughout the world. When gentlemen say that our laws and regulations deter or stand in the way of re-creating a merchant marine; when they say that they have been forced to give up the Pacific entirely and that they can not compete on the ocean with foreign lines, all they say but furnishes unanswerable argument that it is the duty of the Government to step in and supply the ocean transportation facilities which it is of vital interest to the whole country should be had and maintained. We get the trade we want by going after it. We can make and sell in the foreign markets of the world, when transportation facilities are provided at reasonable rates, just as good articles for as little money as any other country. No individual country need dominate the seas. Our export trade should materially increase with the Orient and Latin America, and it will if ships flying the American flag are put in operation to open up the routes and maintain a permanent and proper service.

Is a great, powerful, rich country like the United States to surrender to a combination of shipping interests, throw up its hands, and confess itself absolutely helpless and hopeless, and unable to keep its flag on the seas, to protect its commerce, to take the surplus products of its fields, mines, and factories to the waiting markets of the world, there to exchange them for the things we need in those markets, settling the balance in bills expressed in dollars and cents on our financial centers? For 50 years we have hoped that individuals would engage in that most profitable business with American ships. Our chief investors in shipping have solemnly said that "free ships" would not induce them to give their ships American registry under normal conditions. Although the legislation for free ships will help, as it has already helped, when peace is restored our flag will be hauled down on many vessels, we are told; and if that be true, our problem will remain unsolved if we rest where we are.

We have noted that our exports increased this year over last. We have observed that our shipyards are working to capacity. We have seen American tonnage increase since the registry act of 1914 went into effect, and the percentage of commerce carried in American bottoms increase. But we must face the facts, on the other hand, that our imports have decreased; that over $700,000,000 of our exports are solely for war purposes. Freights have gone mountain-high, and in some instances are prohibitory—instance, phosphate, coal, lumber, and other products. Some of our products can not be moved at all over sea where the markets are. Our yards are busy mainly with naval work, and very little new construction of merchant ships for foreign trade is going on. The world's ocean tonnage has greatly decreased. Export of "regular merchandise" for the year ending June 30, 1915, is nearly $200,000,000 less than in 1914. To North America the decrease was 52 millions, 10 per cent; to South America, 25 millions, 20 per cent; to Oceania, 6 millions, 7 per cent. The present year, it is claimed, we have exported only 32 per cent as many agricultural implements, 52 per cent as many sewing machines, 33 per cent as many steel rails, as we did in the year before the war. The figures show, too, that we are actually losing our exports to the neutral countries faster than to the belligerents.

However, the trade is not only ready for us, but insistent. If we had the carriers now our foreign commerce would enormously increase. This is shown by the comparison of the exports for the eight months ending August, 1915, with those of the eight months ending August, 1914, which ought to be mentioned in connection with the estimate for the year just given. The strong tendency is for our exports of "regular merchandise" to assume normal proportions even now. For instance, in the exports to Europe in the eight months last mentioned there was an increase of 857 millions, 109 per cent; to North America an increase is shown of nearly 3 millions; to South America an increase of 21 millions, 32 per cent; to Asia a gain of over 28 millions, 46 per cent; to Oceania an increase of 12 millions, 24 per cent; to Africa an increase of 5 millions, 31 per cent. The total of our exports grew 920 million dollars in these eight months, or 70 per cent.

Do not doubt, however, that our exporters are paying foreign shipowners dearly for this business. The rate on grain to Liverpool is 40 cents a bushel, while before the war it was 4 cents. The rate on flour has gone from 12 cents to 65 cents a hundred pounds. On provisions the rate is increased from $5 a ton to $1 a hundred pounds. On cotton the rate is $1.25, where formerly it was 20 cents a hundred pounds. Eastern railroad terminals are congested, due to lack of ships. Freight continues to pile up at the ports. No law controls ocean rates. We may expect to pay foreign shipowners their own price, and that price will be higher yet.

Once upon a time Illinois owed millions to Europe; she could not pay because her chief means of raising money, the grain crop, could not avail for the reason that there was lack of cheap transportation;

and, again, foreign corn laws excluded her wheat from a market in the land of the creditors. Repudiation was threatened, but with rugged honesty, by persistent industry, after a time, the debts were fully paid.

Our markets can be restricted or eliminated without resort to import laws—control of the means of transportation is sufficient. The welfare of our producers is in peril, the necessary equipment of the nation itself is incomplete when we are dependent on foreign vessels to reach markets. The government can bring about public control of terminals. It can do away with the differentials complained of. It can regulate rates on the ocean to a great extent. It can arrange for through bills of lading and reasonable traffic agreements with connecting land carriers. All of these matters which have been mentioned as needing correction can be remedied—matters which individuals can not reach and which materially affect the water carriers.

The same provision that the Government would work out through the shipping board for the ships under its control it would assist in arranging for all other lines. I can not escape the strong conviction that our problem can only be solved along the lines of the amendment to Senate 6856, offered January 26 last. I do not mean to take an arbitrary position. If anything better is proposed or any modification is suggested that reasonably promises to improve existing conditions more certainly and speedily, to serve the ends of justice for all concerned, to take care of the public interests and achieve the common good, I should lend it what support I could.

We have seen what the situation is. Although the minority report on the ship-purchase bill (S. 6856) argued that there was no occasion to be disturbed, that really a let-alone policy was probably the wisest after all—in effect, that there was no call for Congress to do anything—I think it may be agreed that there is widespread demand for resuscitating our merchant marine. The truth is, delaying action thus far by filibustering to death the bill before the last Congress has resulted in a loss of hundreds of millions of dollars to the people of the United States in extortionate freight charges and loss of commerce.

The records show that enormous profits were made in foreign shipping before the war. No doubt foreign shipping people will continue to charge American merchants the last cent the traffic will bear. Even before the European war there was no certainty or stability about rates on bulk freights. Since then contracts have been violated, agreements disregarded, quotations ignored, and charges fixed (irrespective of previous agreements) at whatever the shipowners chose to name.

The cry of socialism and paternalism has been raised. A mere name, however violently shouted, does not frighten me. That cry has been raised before. Paternalism and socialism were shrieked when other legislation which put the Government into private business, and which the people would not countenance repealing now, was proposed and enacted. I might mention as attacked on similar grounds the postal-savings law, the parcels-post law, the rural free-delivery law; even the five acts in reference to agricultural education, establishing agricultural colleges, and providing for agricultural extension work; respecting the Panama railroad and steamship line which was taken over by the Government; providing for the construction by the Government of a railroad in Alaska; even the measure for building of dams for power and irrigation purposes, the Government manufacturing its own cement. The bill to establish the Federal reserve system was criticized on similar grounds; also the law creating a bureau of marine insurance in the Treasury Department of the Government, without which most of our export trade since the war would have been impossible. Similar protests and dire predictions were heard when the Interstate Commerce Commission was established under the administration of President Cleveland in 1887. Railroad authorities themselves pay high tribute to that great commission, and I think it is quite universally conceded that it is an absolutely necessary portion of our governmental institutions. Legislation definitely creating a permanent merchant marine will enable the American people to assert and protect their rights and interests in the vital matter of ocean transportation and over-seas trade, and I know of no other way of reaching that point or accomplishing that result.

There is no use to discuss subsidy. It so happens that the United States now grants to four ships a larger subsidy—about $750,000 a year—than is granted by any other country in the world for similar service. The favorable mail contracts now provided for by law are the only subvention the Government will give. It is remarkable how futile these have been in the building up of our merchant marine.

Contrary to general impression, the merchant marine of the maritime nations of the world receives no subsidy. Mail subvention for fast mail and passenger service, yes; but a subsidy such as some of the opponents to the Government merchant marine ask for, no; the great bulk of the world's ocean commerce is carried in the lowly "tramps" or nonpassenger cargo boats, which never received 1 cent of subsidy from any country. It can be shown that the normal profits of ocean steamers are so large that it is absurd to talk of subsidies as a remedy for our shipping plight. Since the facts are becoming better known, those who advocate subsidy are becoming fewer in number.

I believe I have made clear that none of the remedies advanced by opponents to a Government merchant marine will do. Our present navigation laws are not at fault; subsidy is out of the question, and private capital will not or can not provide an adequate American mercantile marine for the overseas trade.

The only objections I have heard advanced against a Government merchant marine are three: First, it is socialistic. I believe I have answered that.

Second, it will check private enterprise from going into the overseas shipping business. What has private enterprise done in all the years past toward building up an American merchant marine? Practically nothing. Three ocean carriers under construction in a year and a half just past, when our trade was distressed for ships, is what individual or private enterprise has given us. From the standpoint of supplying the demands of commerce and trade, from the standpoint of the needs of the Army and Navy, from the standpoint of taking our rightful place on the seas, from the standpoint of urgent national necessity, the call is for mail and cargo ships, convertible as may be required into auxiliaries and transports. There is no way open to us but for the Government to lead off right now in responding to that call. The Government will never encroach on any routes that are being taken care of by private steamship lines, under the American flag.

Third, it is said that the Government merchant marine will be a financial failure. I am afraid that is just what many who oppose the measure fear it will not be. I am assured by practical steamship people that it will be almost impossible for the Government merchant marine to lose money; that the profits in ocean shipping are so large in normal times, and particularly so at present, that it is inconceivable that any shipping enterprise carried out on the scale this would be can lose money. On the contrary, I am assured that satisfactory profits can be earned after making very material reductions in freight and passenger rates. The reports of earnings of numerous steamship lines which I have seen fully bear this out.

The Washington Post of November 1 published a "special" from New York, which carried this statement:

> The mercantile marine of Great Britain has reaped such a golden harvest to its financiers as makes Arabian Nights' dream of wealth. They have been allowed by the Government to increase freights from 500 to 600 per cent, the complete removal of German competition from the high seas and the arbitrary regulation of American competition having given the Britishers an absolute monopoly. Old vessels which 18 months ago could hardly have been sold at breaking-up prices of $50 or $60, have found ready purchasers at from $125,000 to $300,000, and in many cases have paid for themselves in a single voyage.
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> A large London importer of corn from South America, while gloating over his profits on freight rates, which have risen from 10 shillings per ton in the first half of 1914 to 75 shillings per ton at the present, considered it a matter of the highest importance that the Government should take steps to prohibit any and all competition from neutral countries, especially from the United States.
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> The Cunard Co. has paid a dividend of 20 per cent, despite the loss of the *Lusitania*, with consequent suits for damages by the families of the victims, which amounted to an enormous sum, and despite submarine perils, which at different periods practically cut off the passenger traffic on English ships from American ports. Frederick Leyland & Co. are paying only their usual dividend of 10 per cent, but they have this year erased from their budget all arrears accumulated during the past three years. The Empire Transport Co. acknowledges that its net profits for this year are an increase of 100 per cent over the net profits for the period from June, 1913, to June, 1914.
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> The London-American Maritime Co., organized in June of last year under the special protection of the British Government, has earned in its first year dividends of 27 per cent on its ordinary shares, while the holders of preference shares get an additional 11½ per cent, or 38½ per cent.

The Journal of Commerce of October 28 last says:

> American exporters, as far as trans-Atlantic trade is concerned, are facing a condition of acute congestion in shipping facilities and of unprecedently high ocean transportation charges. Shipowners are reaping a veritable bonanza.

Under date of October 27 last the Journal gives the statement of a railroad official that the railroads coming into New York are handling the largest amount of traffic in their history, and the congestion at terminals is likely to be the greatest ever seen, due to the inability of ship lines to move the freight sent to this city, "which is already sufficient to fill five times over every vessel available for export purposes."

With freight embargoes at Galveston and threatened at New York, can there be any doubt that the absence of ships is holding back the movement of our commerce? There is serious need of American ships in the Australian trade. This commercial situation is pressing and I have by no means exhausted it.

Resolution No. 317, Sixty-third Congress, second session, introduced by my distinguished friend who is to follow me, Mr. Weeks suggested the use of the cruisers *Columbia* and *Minneapolis* and th scout cruisers *Salem*, *Chester*, and *Birmingham* in the merchan service between the cities of New York and New Orleans and th city of Valparaiso, Chile, and intermediate ports. The annual cos of operating the *Columbia* and *Minneapolis* would be $342,330 fo each vessel. The annual cost of operating the *Salem* and *Cheste* would be $341,080 for each vessel. This would not include the expense of the shore establishment for operating the line. Each o the vessels could accommodate only 15 to 20 male passengers and 150 tons of freight. The total gross income from passenger fares and freight for each vessel would be $91,000 annually. The expense fo operating the four vessels, exclusive of shore expenses, would be, pe annum, $1,366,820. The gross possible income for the four ships would be $364,800. Of course, this scheme is out of the question.

Quite a different result would be reached with vessels about 10,000 tons dead-weight, including 1,500 tons bunker space, leaving 8,500 tons dead-weight space for cargo, with accommodations for 100 first class passengers and about 75 intermediate passengers, speed to average 14 knots per hour fully laden, cost of construction in American shipyards not exceeding $1,000,000 each. Instead of a loss of over a million dollars a year, the net annual earnings of four such steamers can be shown to be reasonably estimated at $2,084,000.

However much we may differ on the question of our commercial necessities, we must surely be of one mind that reasonable preparedness requires that we have auxiliaries and transports, and they may be operated in the merchant service in times of peace, which we hope would embrace their lives. Last January, when the ship-purchase bill was before the Senate, I gave as one of the reasons for its passage our need of naval auxiliaries. I pointed out that Great Britain with all her naval establishment nevertheless found it necessary to commandeer about 1,500 merchant vessels. The need grows on us.

The Government is compelled to build and acquire ships to meet the necessities of the Navy. Naval auxiliaries are a certain and controlling need. These auxiliaries can be constructed so as to serve commerce in time of peace and to be made ready to serve the Navy in times of threatened or actual war. It is an arm of the national defense which must be developed and made serviceable.

At least 400 vessels are required now for this purpose. This would make a good start toward a merchant marine, Government owned and controlled. Secretary McAdoo says, in his report on the Pan-American Conference, to the President:

> I am informed by the Navy Department that in order to bring our present Navy up to its maximum usefulness and efficiency in time of war there is needed 400 merchant vessels of approximately 1,172,000 gross tonnage of varied character and requirements; that in addition to this, "should our own coast be invested or even occasionally visited, there would be required a large number of small vessels fitted for mine sweeping, say, 324 vessels of about 150 gross tons each." We have only a small portion of the required tonnage in suitable merchant vessels of the larger units registered under our flag.

My time is exhausted and I shall not be able to consider this phase of the subject further. Indeed, a mere statement is sufficient. Elaboration would be superfluous in a gathering of intelligent and patriotic citizens like this.

Thought, however mature, conviction, however deep, get us nowhere until they begin to operate in will and act. Merely recounting with reiteration the deplorable situation, and nothing more, evidences a species of cynicism, an unhealthy state of mind—lays no keels.

There never was a time when a change in shipping conditions would be less disturbing and more advantageous than right now. Now is the best possible time to inaugurate such changes. Nothing will be gained by delay. We have all the information upon which to act. Satisfaction with present conditions means a sacrifice of golden opportunities and an inexcusable lack of proper conception of our responsibilities.

Monetary and trade supremacy had its inception on the banks of the Nile. It moved westward to the shores of the Mediterranean and thence further westward out into the open sea of commercial activity. It passed from Portugal to Spain, then to Holland, then to France, and then to England. Venice, Lisbon, Amsterdam, Antwerp succeeded each other as centers; then London, the frontier town of the Middle Ages, at last supplanted them all.

The earlier struggles were directed to the attainment of some particular national supremacy, and that was to be founded on monopoly. That meant trouble. But the distinctive feature of commerce to-day is its international character. It is not a question of monopoly or particular supremacy; it is a question in large measure of leadership, and in this the factors are natural advantages, better methods, better facilities of exchange, efficient and economical service, a sound currency and financial influence, and the freest markets. I have seen it averred that in all the world's history nothing has had lasting importance like trade. Pitt declared, "British rule is British trade." Chamberlain expressed the same thought in the statement, "The Empire Is Commerce."

The marvelous resources of the United States, her financial strength and facilities, the awakening of the East and the promising outlook in Latin America, the Isthmian Canal, the opportunities for forming new commercial ties, the relations founded on a better understanding, and mutual good will toward all the world mean, if we but discharge our responsibilities, the establishment of commanding centers of trade in the United States and drawing westward again commercial leadership.

The great English poet and dramatist gives us this picture:

Antonio is sad. Salarino says to him—

"Your mind is tossing on the ocean,
There, where your argosies with portly sail,
Like signiors and rich burghers on the flood,
Or, as it were, the pageants of the sea,
Do overpeer the petty traffickers,
That curtsy to them, do them reverence.
As they fly by them with their woven wings."

To which Antonio replies—

"Believe me, no; I thank my fortune for it,
My ventures are not in one bottom trusted,
Nor to one place; nor is my whole estate
Upon the fortune of this present year,
Therefore, my merchandise makes me not sad."

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64TH CONGRESS
1st Session
SENATE
DOCUMENT
No. 11

ALLEGED REBATES TO THE UNITED STATES STEEL CORPORATION

LETTER FROM THE CHAIRMAN
OF THE
INTERSTATE COMMERCE COMMISSION
TRANSMITTING, IN RESPONSE TO A SENATE
RESOLUTION OF FEBRUARY 2, 1914, A REPORT
RELATING TO ALLEGED REBATES TO THE
UNITED STATES STEEL CORPORATION

DECEMBER 10, 1915.—Referred to the Committee on Interstate Commerce
and ordered to be printed

WASHINGTON
1915

LETTER OF TRANSMITTAL.

INTERSTATE COMMERCE COMMISSION,
Washington, December 10, 1915.

To the PRESIDENT OF THE SENATE OF THE UNITED STATES.

SIR: I have the honor to transmit herewith report of investigation by the Interstate Commerce Commission In the Matter of Alleged Rebates to the United States Steel Corporation, made in response to a resolution of the Senate of the United States, dated February 2, 1914, of the Sixty-third Congress.

Respectfully,

C. C. MCCHORD,
Chairman.

INTERSTATE COMMERCE COMMISSION.

No. 6545.

IN THE MATTER OF ALLEGED REBATES TO THE UNITED STATES STEEL CORPORATION.

Approved June 28, 1915.

REPORT TO THE SENATE OF THE UNITED STATES.

BY THE COMMISSION:

On February 2, 1914, the Senate of the United States passed the following resolution:

> *Resolved*, That the Interstate Commerce Commission is hereby requested to conduct an examination and inquiry for the purpose of ascertaining whether the United States Steel Corporation, or any of its subsidiaries, has been guilty of giving or receiving any unlawful rebates, offsets, or preferences, especially within the last six years; and if said Commission finds that such unlawful rebates, offsets, or preferences have been given or received, then the Commission is directed to report the dates and amounts thereof to the Senate for its information.

Shortly after a copy of the resolution had reached us the Commission, by appropriate order instituted an investigation—

> for the purpose of ascertaining whether the United States Steel Corporation, or any of its subsidiaries, has been guilty of giving or receiving any unlawful rebates, offsets, or preferences, especially within the last six years; and to report the dates and amounts thereof to the Senate for its information in case the Commission finds that such unlawful rebates, offsets, or preferences have been given or received.

It appears that one David H. Lamar and one William H. Green had claimed to be in possession of information showing violations of law on the part of the steel corporation through the receipt by it of secret rebates amounting to millions of dollars, and it is understood that the resolution of the Senate was based upon their representations. It further appears that Mr. Lamar had previously made similar intimations to a member of this Commission and had inquired whether the Commission would undertake an investigation and permit him to direct the form and manner in which it should be carried on. He was advised that upon being put in possession of any definite information of any such violation of law it would be the duty of the Commission to investigate, but that it would do so only in its own way, pursuing such course as the facts disclosed might require. Repeated efforts having failed to elicit any statement from Mr. Lamar in support of his assertions, further conference with him was declined.

After the passage of the resolution by the Senate and after the order of investigation had been entered by the Commission Mr. Lamar and Mr. Green were requested at a personal conference with a member of the Commission to state the facts within their knowledge so that the scope of the investigation might be outlined by the Commission and affirmative steps taken, through public hearings and by the Commission's examiners, to ascertain whether any unlawful rebates and preferences had been received by the steel corporation or by any of its subsidiary companies. But they declined to reveal their information except at a public hearing. They were accordingly served with subpœnas and a public hearing was had on March 3, 1914, Mr. Green being first sworn and called as a witness. The questions put to him at once developed the fact that he had not been a student of transportation matters; that he had attended some of the hearings before the so-called Stanley committee of the House of Representatives, the report of which he had read; that he had also read reports of the Bureau of Corporations and of this Commission in which matters relating to the steel corporation were considered; that he had also examined the record in the government's suit to dissolve the steel corporation; but that he had no independent information, or indeed any information respecting the affairs of the steel corporation and its subsidiaries that was not already of public record in one form or another. Having referred during his testimony to an individual who was in possession of facts not heretofore known, he at first declined to name him, but being required to state who he was he finally named Mr. Lamar.

Mr. Lamar was then called as a witness and, being put under oath, was subjected to examination as to his information about the relations of the steel corporation with the railroads of the country. His testimony shows that he knew nothing that was not already generally known to the public, and that such information as he had was of a perfunctory and superficial nature and had been derived from reading the reports of various public bodies, and especially of this Commission, in which the affairs of the steel corporation are discussed. He named several of the subsidiaries of the steel corporation and asserted that "offsets," by which it is understood he meant rebates, had been received from the carriers by the steel corporation in the form of dividends on its holdings of stock in these companies, the stock being based, as he asserted, upon an entirely fictitious valuation.

In *Pittsburgh Steel Co.* v. *L. S. & M. S. Ry. Co.*, 27 I. C. C., 173; *Vulcan Iron Works Co.* v. *A., T. & S. F. Ry. Co.*, 27 I. C. C., 468; *Industrial Railways case*, 29 I. C. C., 212, 32 I. C. C., 129; *Coal and Oil Investigation*, 31 I. C. C., 193; *Lum* v. *G. N. Ry. Co.*, 33 I. C. C., 541; and *Joint Rates with the Birmingham Southern R. R. Co.*, 32

I. C. C., 110, the relations of the steel corporation to various of its subsidiary railroad and steamship companies have been made a matter of public record. An even more complete record of all such facts has been made in the proceeding by the government, heretofore mentioned, in which it was sought to dissolve the United States Steel Corporation under the so-called antitrust law. *United States* v. *United States Steel Corporation*, 223 Fed., 55. The Commissioner of Corporations has also made an extended investigation, the results of which are incorporated in three printed volumes entitled "Report of the Commissioner of Corporations on the Steel Industry."

The Commission comes into constant contact with the records and accounts of railroads and other public carriers through its examiners of accounts, and has reason to believe that there is no basis for the allegation that wholesale rebates have been paid to the steel corporation during the period of six years mentioned in the resolution; apparently in alleging that "offsets" and rebates have been received by the steel corporation during that period the witnesses mentioned had in mind the dividends on the stock of the numerous subsidiary railroad and steamship lines owned by it, and as to this all the facts have been ascertained and are accessible in the various public records just mentioned. Under these circumstances we venture to believe that the resolution of the Senate is sufficiently complied with for all practical purposes by the reference to those investigations in connection with the foregoing statement.

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64th Congress } SENATE { Document
1st Session } { No. 12

LITTLE KANAWHA RAILROAD COMPANY

LETTER FROM THE CHAIRMAN OF THE INTERSTATE COMMERCE COMMISSION

TRANSMITTING, IN RESPONSE TO
A RESOLUTION OF THE SENATE
OF OCTOBER 7, 1914

A REPORT OF THE INVESTIGATION BY THE
COMMISSION OF THE OWNERSHIP, MANAGEMENT,
AND CONTROL OF THE LITTLE KANAWHA
RAILROAD COMPANY

December 10, 1915.—Referred to the Committee on Interstate Commerce
and ordered to be printed, with illustrations

WASHINGTON
1915

UNITED STATES OF AMERICA ★ GOVERNMENT PRINTING OFFICE

LETTER OF TRANSMITTAL.

INTERSTATE COMMERCE COMMISSION,
Washington, D. C., December 10, 1915.

To the PRESIDENT OF THE SENATE OF THE UNITED STATES:

SIR: I have the honor to transmit herewith report of the investigation by the Interstate Commerce Commission of the ownership, management, and control of the Little Kanawha Railroad Company, made in response to Senate resolution No. 462, dated October 7, 1914, of the second session of the Sixty-third Congress.

Respectfully,

C. C. MCCHORD,
Chairman.

No. 7378.

IN RE THE OWNERSHIP, MANAGEMENT, AND CONTROL OF THE LITTLE KANAWHA RAILROAD COMPANY.

June 14, 1915.

REPORT OF THE COMMISSION TO THE SENATE OF THE UNITED STATES.

BY THE COMMISSION:

The Commission has the honor to submit the following report in compliance with Senate resolution No. 462 of the second session of the Sixty-third Congress, dated October 7, 1914, in the matter of the ownership, management, and control of the Little Kanawha Railroad, a railway extending up the Little Kanawha Valley, in the state of West Virginia, from Parkersburg to Owensport, a distance of 30.44 miles:

On October 12, 1914, the Commission instituted a proceeding of inquiry and investigation into the several matters and things set forth and referred to in the resolution. After an informal investigation the proceeding was set down for formal hearings before the Commission at which the testimony of a number of witnesses was taken and a large amount of documentary evidence introduced. The facts stated herein were secured from the annual and statistical reports on file with the Commission, from the records of carriers and the secretary of state of West Virginia, from testimony given at formal hearings, from documents submitted by witnesses and carriers, and from reports of the West Virginia geological survey, and other official reports.

In order to make a clear presentation of the facts disclosed concerning the ownership, control, and management of the Little Kanawha Railroad the Commission has found it necessary to include in its investigation and report the organization, ownership, management, and control of other railroads in West Virginia and adjacent states, as well as the topography, resources, and population of the country through which the Little Kanawha Railroad was projected under its charter.

The first section of this report is confined substantially to the specific requirements of the resolution, and in the order as outlined therein. The second section deals with the organization, ownership, management, and control of the Little Kanawha Railroad in connection with the organization, ownership, management, and control of other railroads in West Virginia and adjacent states, and certain coal properties in West Virginia.

SECTION I.

First. On February 18, 1915, the total issues of 3,595 shares of common stock and 1,500 shares of preferred stock of the Little Kanawha Railroad Company, of the par value of $100 per share, were held as shown below:

Name of holder.	Address.	Shares.
COMMON STOCK.		
J. J. Turner	Pittsburgh, Pa.	1
E. B. Taylor	do	1
J. M. Schoonmaker	do	5
John G. Robinson	do	5
W. F. Brunner	do	5
E. H. Kennedy	do	5
J. T. Blair	do	1
Union Trust Co. of Pittsburgh, trustee	do	3,424
C. H. Shattuck estate	Parkersburg, W. Va.	20
Wirt County, W. Va.	Elizabeth, W. Va.	125
W. C. De Camp	Parkersburg, W. Va.	1
S. L. Gould	do	1
W. A. McCosh	do	1
Total		3,595
PREFERRED STOCK.		
Union Trust Co. of Pittsburgh, trustee	Pittsburgh, Pa.	1,334
C. H. Shattuck estate	Parkersburg, W. Va.	166
Total		1,500

Of a total issue of 5,095 shares of stock of the Little Kanawha Railroad Company, 4,781 are jointly owned by a combination consisting of the Pittsburgh & Lake Erie Railroad Company, the Pennsylvania Company, and the Baltimore & Ohio Railroad Company, which companies are corporations engaged in the transportaton of passengers and property by railroad in interstate commerce.

The Union Trust Company of Pittsburgh holds 3,424 shares of common and 1,334 shares of preferred stock of the company issued to it as trustee for the Pittsburgh & Lake Erie Railroad Company, the Pennsylvania Company, and the Baltimore & Ohio Railroad Company, the joint owners thereof, under an agreement between the joint owners and the trustee dated February 26, 1906. A copy of this agreement will be found in Appendix No. 10 of this report.

This agreement discloses that this stock is owned jointly in the following proportions: The Pittsburgh & Lake Erie, an undivided one-half interest; the Pennsylvania, an undivided one-fourth interest; the Baltimore & Ohio, an undivided one-fourth interest.

In the same proportions these companies jointly own the common stock of the Little Kanawha held by the Union Trust Company of Pittsburgh, trustee, in the names of: J. J. Turner, the first vice president of the Pennsylvania; E. B. Taylor, the second vice president of the Pennsylvania; J. M. Schoonmaker, the vice president of the Pittsburgh & Lake Erie; John G. Robinson, the assistant secretary of the Pittsburgh & Lake Erie; W. F. Brunner, the chief clerk to the vice president of the Pittsburgh & Lake Erie; E. H. Kennedy, the auditor of the Pittsburgh & Lake Erie; J. T. Blair, the secretary and treasurer of the Little Kanawha.

Second. The Little Kanawha Railroad is controlled by a combination consisting of the Pittsburgh & Lake Erie, the Pennsylvania, and the Baltimore & Ohio, through the joint ownership of 3,447 shares of common and 1,334 shares of preferred stock of the par value of $100 each, held by the Union Trust Company of Pittsburgh as trustee, under an agreement between the owning companies and the trustee dated February 26, 1906, referred to above.

The investigation of this Commission does not disclose that the Little Kanawha Railroad is now being held for any purpose other than the transportation of passengers and property in interstate and intrastate commerce. It is being operated between Parkersburg and Owensport, in West Virginia, by the Baltimore & Ohio Railroad Company, as agent for the stockholders.

Third. All the material facts concerning the ownership, control, and management of the Little Kanawha Railroad, as disclosed by the investigation of this Commission, are recited in Section II of this report; but some of the contracts there referred to are not of sufficient importance to require their reproduction here, although they are incorporated of record and are there available for examination. In this section it is shown that the Little Kanawha Railroad was acquired in order to obtain coal properties in Gilmer, Braxton, and Lewis counties, in West Virginia, and has been operated at a loss since 1906 and is not being held to tie up and prevent the development of the Little Kanawha Valley but is for sale.

SECTION II.

LITTLE KANAWHA RAILROAD COMPANY.

The Little Kanawha Railroad Company was organized on the 29th day of April, 1896, by S. L. Gould, Edward McCreary, William Bentley, W. A. McCosh, and J. Henry Fischer, business men of Parkersburg, and was duly incorporated under the laws of West Virginia on the 1st day of May, 1896, for the purpose of constructing and operating a railroad in that state, to commence at or near Parkersburg, and run thence up the Little Kanawha River by the most practicable route to a point at or near Burnsville, in Braxton county. At that point a connection could have been made with the West Virginia & Pittsburgh Railroad, now operated by the Baltimore & Ohio. The Coal & Coke Railway was subsequently constructed through Braxton and the eastern part of Gilmer counties, which would have furnished the Little Kanawha Railroad an outlet at Gilmer or Burnsville.

The authorized capital stock of the company at May 1, 1896, was $5,000, divided into shares of $100 each. Each of the above-named corporators subscribed for one share. The principal business office of the corporation was located in Parkersburg, W. Va. On July 10, 1896, an increase in the capital stock of the company to $3,000,000, divided into shares of $100 each, was authorized by the stockholders.

The railroad was constructed from South Parkersburg to Elizabeth and extended to Palestine, now Owensport, during 1897 and 1898, by the Kanawha Construction Company and other contractors. The Kanawha Construction Company was organized by A. B. White, H. C. Jackson, and V. B. Archer, principal stockholders of the Little Kanawha Railroad Company. The money necessary to pay for the construction of the road was obtained from the sale of county bonds and from the sale of stock of the corporation.

On July 13, 1897, the stockholders authorized the issue of preferred stock in the amount of $5,000 per mile for each and every mile of track of the company constructed ready for use to be issued and disposed of in the following manner:

Five thousand dollars of the preferred stock to be issued with each $12,000 of the common stock, but such preferred stock to be issued only to pay for construction of the railroad under construction contracts for that purpose and in no other manner and for no other purpose;

All other subscriptions to the capital stock of the company to be paid in common stock;

But the stock so to be issued as preferred stock not to be an issue of stock in addition to the authorized stock, but so much of the authorized capital stock as equals the sum of $5,000 per mile of the railroad of the company to be issued as preferred stock;

The holder of the preferred stock to be entitled to have and receive a perpetual dividend of 5 per cent per annum and no more out of the profits of the corporation, payable semiannually on the 1st days of March and September in each year, beginning on the 1st day of September, 1898, such dividend to be paid before any dividend is distributed to the holders of common stock of the company, and to constitute a lien on the franchises and property of the corporation, subject to the first mortgage coupon bonds of the company and the interest thereon.

On July 13, 1897, an issue of first mortgage bonds of $1,000 each, aggregating $1,680,000, dated January 1, 1898, payable January 1, 1948, bearing interest at 5 per cent, payable semiannually on the 1st days of September and March, was authorized by the stockholders and directors for the purpose of completing the construction of the line from Parkersburg to Burnsville and to provide equipment for its operation. The bonds were to be secured by a deed of trust to the Knickerbocker Trust Company of New York, as trustee, on all property and franchises of the corporation. The board of directors was authorized to sell and dispose of these bonds from time to time and on such terms as it should deem to be to the interest of the company not to exceed $15,000 per mile of main line. The first issue, amounting to $375,000, was to be for the first 25 miles of track from Parkersburg to Elizabeth. Whenever and as often as the company should present a statement under seal with a certificate of its president and general manager or superintendent attached thereto to the effect that 10 miles of additional track on the main line of the railroad as located from Elizabeth toward Burnsville had been laid ready for use, the trustee should certify and the corporation might sell bonds therefor at the rate of $15,000 per mile for each and every mile of such additional track so constructed and ready for use. These bonds were not issued.

On March 30, 1897, Thomas Pettigrew was appointed chief engineer of the Little Kanawha Railroad Company and authorized and directed to make the necessary survey and location of the railroad from Parkersburg up the Little Kanawha River to Burnsville, including plats, profiles, and specifications for the line and the termini at Parkersburg to Reedy Creek, in Wirt county.

On the 24th day of December, 1897, the board of directors authorized the president of the corporation to execute a deed of trust to the Knickerbocker Trust Company of New York, as trustee, on all the property and franchises of the Little Kanawha, to secure a bond of $225,000, due one year from date, payable to bearer, and negotiable and payable at the office of the trust company. At a special meeting of the stockholders on February 28, 1898, the action of the board of directors as aforesaid was duly approved, ratified, and confirmed, and a bond of $225,000, dated December 24, 1897, was authorized and issued, and the president of the Little Kanawha was authorized to use the bond as collateral security to secure any loan or loans that he might desire to obtain.

On February 28, 1898, the board of directors authorized H. C. Jackson, president, to borrow from the Knickerbocker Trust Company $45,000, to execute a note or notes therefor, and to deposit as collateral security the bond of $225,000 above referred to and secured by deed of trust on the property and franchises of the railroad company.

It appears that this loan was authorized to obtain money to pay Henry Levis & Company of Philadelphia, Pa., for the necessary rails, spikes, bolts, fish plates, and iron girders to complete the line from the Wood-Wirt county line to Elizabeth.

A copy of the minutes of the executive committee of the board of directors of the Little Kanawha of October 19, 1901, discloses that first mortgage bonds of the company of the par value of $450,000 had been issued and deposited with the Knickerbocker Trust Company of New York in escrow to secure the payment of two liens against the company, one of $80,041 in favor of Gooch, Rinehart & Dennis, contractors, and the other of $45,000 and interest due the Knickerbocker Trust Company, and that the property was then and had been for some time in the hands of special receivers of the United States circuit court for the northern district of West Virginia. The executive committee by resolution of October 19, 1901, authorized the delivery of the bonds of the par value of $450,000 temporarily issued and placed in escrow with the Knickerbocker Trust Company to J. T. Blair and E. D. Fulton, when the liens in favor of Gooch, Rinehart & Dennis and Knickerbocker Trust Company were fully discharged by A. B. White, H. C. Jackson, V. B. Archer, and H. B. Nye, who were majority stockholders of the Little Kanawha Railroad Company, and who had executed a written option to J. T. Blair and E. D. Fulton on July 13, 1901, for the purchase of their stock, which is hereinafter described.

Maps and profiles of the Little Kanawha Railroad Company were filed in the office of the secretary of state of West Virginia, in accordance with the laws of that state, on various dates from March 17, 1899, to December 6, 1902.

Two maps showing all these locations, except the proposed branch railroad from a connection at or near Worthington Creek, down the east bank of the Little Kanawha River to its junction with the Ohio River, thence up the east bank of the Ohio River to Williamstown, in Wood county, opposite the city of Marietta, Ohio, the location of which was abandoned, have been prepared by Samuel D. Brady, chief engineer, and submitted at a hearing before the Commission. Copies of these maps will be found in Appendixes Nos. 1 and 2 of this report.

Appendix No. 2 includes the location of the Burnsville & Eastern Railroad Company from Burnsville to Belington, in West Virginia, as well as the location of the Little Kanawha Railroad east of Burnsville.

Appointments of attorneys in fact to accept service of process and otherwise to conform to the requirements of the laws of West Virginia were made by the company as shown below:

Name.	Address.	Date of appointment.
V. B. Archer	Parkersburg, W. Va.	July 10, 1896
H. G. Lampman	do.	Apr. 13, 1903
B. R. Petrikin	do.	July 14, 1908
Reese Blizzard	do.	Nov. 17, 1910

This investigation discloses that the Little Kanawha was organized and originally projected from Parkersburg to Burnsville, primarily to reach about 75,000 or 80,000 acres of coal lands lying in the eastern part of Gilmer county, the northwestern part of Braxton county, and the southwestern part of Lewis county, and to establish a connection with the West Virginia & Pittsburgh Railroad at Burnsville. The natural resources of Wirt and Calhoun counties and the greater part of Gilmer county were not attractive from a railroad traffic standpoint, and the counties of Wood and Braxton were fairly well served by existing railroad transportation facilities.

A number of individuals, among them H. C. Jackson, A. B. White, W. W. Jackson, G. A. Newlon, David A. Nease, Percival G. Kelsey, and George G. Hadley, obtained options on coal lands and coal and mining rights in Gilmer, Braxton, and Lewis counties, W. Va. The four individuals first named were principal stockholders of the Little Kanawha Railroad Company. On the 5th day of May, 1900, H. C. Jackson and his associates entered into an agreement with Nease and his associates, under which the interests of the latter in options on about 25,000 acres of coal and mining rights standing in the name of George Gillmor, trustee, were defined, limited, and fixed as to royalty in case H. C. Jackson and his associates performed certain acts respecting the organization of a coal company, the financing of the Little Kanawha Railroad Company, and other matters embraced in the contract.

On November 17, 1900, H. C. Jackson, W. W. Jackson, A. B. White, G. A. Newlon, George Gillmor, trustee, B. E. Cartright, and the Little Kanawha Railroad Company entered into an agreement in which it was stipulated that B. E. Cartright was ready, in conjunction with the four men first named to perform or cause to be performed all the acts necessary under the contract with Nease and his associates, dated May 5, 1900, to entitle H. C. Jackson and his associates to require George Gillmor, trustee, to account to them for all the proceeds, benefits, and profits from the coal and coal rights in his name except the royalty provided therein for Nease and his associates.

On the same date an agreement was made between the same parties with respect to financing and extending the Little Kanawha Railroad to the coal fields in Gilmer, Braxton, and Lewis counties, in West Virginia, and with respect to the coal and coal rights in these counties standing in the name of George Gillmor, trustee, and the formation of a new corporation to take over the railroad and coal properties referred to above.

In order to carry out the provisions of the contract of May 5, 1900, H. C. Jackson, A. B. White, G. A. Newlon, and others organized the Braxton Coal Company, a corporation under the laws of West Virginia. This company acquired, by deed dated November 28, 1900, all the contracts, agreements, deeds, options, bargains, rights, and interests of every kind at law and in equity in and concerning 23,657 acres of coal and coal-mining rights and lands in Gilmer, Braxton, and Lewis counties, W. Va., held and owned by George Gillmor, trustee.

The Braxton Coal Company sold its coal land and coal and mining rights to Richard C. Kerens, trustee, by deed dated November 2, 1901, and of record in the counties of Gilmer, Lewis, and Braxton, W. Va. On November 28, 1903, Richard C. Kerens, trustee, Richard C. Kerens, in his own right, Fannie C. Kerens, his wife, Henry G. Davis, Stephen B. Elkins, and Hallie D. Elkins, his wife, sold, assigned, and transferred to the Washington Coal & Coke Company, a corporation, all of the coal and mining rights acquired from the Braxton Coal Company. On January 23, 1904, the Washington Coal & Coke Company sold, assigned, and conveyed all of these coal and mining rights to the Coal & Coke Railway Company, which also acquired from other owners about 20,000 or 21,000 acres of coal and mining rights in Gilmer, Lewis, and Braxton counties, W. Va. The Coal & Coke Railway Company constructed and established a railroad from Elkins to Charleston, in West Virginia, which railroad was extended through the coal property acquired by it from the Washington Coal & Coke Company, in Braxton, and in Gilmer county, near the Braxton-Gilmer county line.

It is understood that Ida G. Jackson has had suits pending against A. B. White, H. C. Jackson, and others in the United States circuit court of appeals for the fourth circuit, growing out of the interest of W. W. Jackson in the coal options referred to above, and in the proceeds of the sale of stock of the Little Kanawha to James T. Blair and E. D. Fulton, under an option dated July 13, 1901, which is hereinafter described.

During May, 1901, J. T. Blair, of Greenville, Pa., became associated with E. D. Fulton, of Uniontown, Pa., who was then engaged in securing options on coal and mining rights in Gilmer county, W. Va., and after an examination of coal properties these gentlemen entered into negotiations with H. C. Jackson, president of the Little Kanawha, for the purchase or control of the property and franchises of that company.

Through Thomas P. Fowler, the president of the New York, Ontario & Western Railway Company, Mr. Blair applied to officials of Blair & Company, bankers, of New York City, and the Equitable Life Assurance Society of the United States for funds to finance the purchase of the road and its extension to the coal lands in Gilmer, Braxton, and Lewis counties. The Equitable Life Assurance Society of the United States decided to finance the purchase and extension of the road, whereupon Mr. Blair proceeded to take a 90-day option for the purchase of a controlling interest in the property and franchises of the railroad free of all debts and liabilities in consideration of the payment of $350,000.

A copy of the option for the purchase of the majority of the stock of the Little Kanawha by J. T. Blair and E. D. Fulton, dated July 13, 1901, will be found in Appendix No. 3 of this report.

Later Mr. Blair met Joseph Ramsey, jr., who was at that time president of the Wabash Railroad Company and engaged in the construction of the Wabash Pittsburgh Terminal Railway, and submitted to him the proposition to acquire the property and franchises of the Little Kanawha and coal properties in Gilmer county. Subsequently Mr. Ramsey agreed to take over the option and to meet the payments thereunder and purchase from Mr. Fulton about 40,000 acres of coal in Gilmer and adjacent counties, and requested Mr. Blair to go to Parkersburg, act as his agent, elect himself president of the Little Kanawha, and select his own board of directors, but not let the parties from whom the controlling interest in the property and franchises of the company were purchased know who was back of the purchase.

Thomas Fitzgerald, now deceased, and then an officer of the Baltimore & Ohio Railroad Company, made an unsuccessful effort to induce H. C. Jackson, A. B. White, and V. B. Archer to repurchase the controlling interest in the property and franchises of the Little Kanawha from Messrs. Blair and Fulton, under their option, and not permit them to acquire the property.

On October 7, 1901, J. T. Blair and E. D. Fulton entered into an agreement with Joseph Ramsey, jr., assigning the option of July 13, 1901, to Mr. Ramsey, in which Mr. Blair agreed to act as agent for

Mr. Ramsey. On the same date the same parties entered into an agreement for the sale to Mr. Ramsey of coal lands in Braxton, Gilmer, Lewis, Calhoun, and adjacent counties in West Virginia. In connection with the latter agreement Ellwood D. Fulton executed a supplementary proposal and agreement on January 11, 1902.

On October 10, 1901, J. T. Blair and E. D. Fulton deposited with the Citizens' Trust & Guaranty Company of West Virginia, hereinafter called the guaranty company, a draft for $100,000, drawn to the order of J. T. Blair by the National Bank of Commerce in St. Louis on the National Bank of Commerce in New York, in partial compliance with the option given by H. C. Jackson and others, stockholders of the Little Kanawha, to Blair and Fulton, dated July 13, 1901, which option named the guaranty company as the depository for all payments provided for therein. On October 11, 1901, the receipt of the partial payment of $100,000 on the option to the guaranty company was acknowledged by Jackson, who covenanted that the sum should be applied on the debts of the Little Kanawha as speedily as the same could be so applied and to no other purpose whatever.

On November 7, 1901, the guaranty company certified that on that date the remaining sum of $250,000 had been paid unto and deposited with it at Parkersburg, W. Va., by J. T. Blair and E. D. Fulton, under a certain agreement dated the 13th day of July, 1901, between A. B. White, H. C. Jackson, V. B. Archer, and H. B. Nye, stockholders in the Little Kanawha, parties of the first part, and Blair and Fulton, parties of the second part; and the said sum of $250,000 was accepted by the said guaranty company under and pursuant to the terms of that agreement. The guaranty company further certified that the sum of $100,000 was heretofore paid and deposited with it by Messrs. Blair and Fulton, and that the sum of $250,000 paid on the instant date covered the full sum of $350,000 mentioned in the agreement of July 13, 1901. The $250,000 was paid in the manner following: Two cashiers' checks of the American Exchange National Bank, dated November 6, 1901, numbered 53276 and 53277, each payable to J. T. Blair and by him indorsed, for the sum of $62,500, and cash currency, aggregating $250,000.

On the same date Blair and Fulton received from the guaranty company the following-described certificates of the capital stock of the Little Kanawha. In receiving this stock Messrs. Blair and Fulton were acting as the agents of Joseph Ramsey, jr., who subsequently transferred the stock to the Little Kanawha syndicate.

To whom issued.	Preferred stock.		Common stock.	
	Certificate No.	Shares.	Certificate No.	Shares.
Henry C. Jackson	1	600	3	529
Do	6	150	4	133
Do	7	150	24	285
Do	12	16	28	28
Do	13	4	31	9
David Burns	3	150	20	132
V. B. Archer	4	50	6	132
Do	5	150	7	142
Do	9	32	26	57
A. B. White	8	32	23	1
Do			25	57
C. H. Shattuck			5	132
Total		1,334		1,637

The stockholders of the Little Kanawha and the number of shares held by each at the time Blair and Fulton purchased the majority of the stock of the company were as shown below:

LIST OF COMMON STOCKHOLDERS JULY 13, 1901.

Name.	Address.	Shares.
Wood county, W. Va	Parkersburg, W. Va	1,800
H. C. Jackson	do	984
C. H. Shattuck	do	152
V. B. Archer	do	331
William Beard	do	1
W. S. Fleming	do	1
W. C. De Camp	do	1
S. L. Gould	do	1
C. L. Williams	do	1
E. McClung	do	1
William Bentley	do	1
J. H. Fischer	do	1
G. E. Smith	do	1
E. Ruber	do	1
G. S. Withers	do	1
J. H. Hamilton	do	1
Daniel Burns	do	132
W. A. McCosh	do	1
A. B. White	do	58
Wirt county, W. Va	Elizabeth, W. Va	125
Total		3,595

LIST OF PREFERRED STOCKHOLDERS JULY 13, 1901.

H. C. Jackson	Parkersburg, W. Va	920
C. H. Shattuck	do	166
V. B. Archer	do	232
A. B. White	do	32
Daniels Burns	do	150
Total		1,500

The debts and liabilities of the Little Kanawha were duly audited and paid in accordance with the agreement of July 13, 1901, and after such debts and liabilities were fully liquidated there remained in the hands of the guaranty company the sum of $24,038.93, which was distributed to stockholders as shown below:

Name.	Shares.	Amount.
A. B. White	373	$3,018.0
H. C. Jackson	1,753	14,183.8
V. B. Archer	192	1,553.5
H. B. Nye	371	3,001.8
H. C. Jackson, assignee of George C. Maston	23¼	188.1
Ida G. Jackson	258¾	2,093.5
Total	2,971	24,038.9

The net yield to these stockholders from the sale of their stock of the Little Kanawha was about $8.09 per share.

George J. Gould, Joseph Ramsey, jr., and William E. Guy organized the Little Kanawha syndicate for the purposes defined in an agreement dated December 2, 1901, a copy of which will be found in Appendix No. 4 of this report.

The names of subscribers to the agreement described above, and the amounts received from them by the St. Louis Union Trust Company as agent for managers of the syndicate, as certified by the assistant trust officer of the trust company on January 29, 1906, are shown below:

Recapitulation statement.

George J. Gould	$1,635,000.00
Myron T. Herrick	375,000.00
Bowling Green Trust Co	225,000.00
St. Louis Union Trust Co	1,474,910.85
J. T. Blair	50,000.00
Jos. Ramsey, jr	311,059.99
E. D. Fulton	20,000.00
P. & P. M. Musser Securities Co	35,048.61
A. G. Edwards & Sons	100,645.83
H. Koehler, jr., trustee	52,572.91
N. T. Arnold	325,583.33
S. B. Elkins	176,149.28
L. G. McNair	70,344.76
H. G. Davis	175,437.48
Reid Northrop	35,061.11
Jas. G. Blaine	14,287.50
H. S. Blaine estate	3,750.00
Robt. S. Brockings	39,563.19
Wm. K. Bixby	35,063.19
A. Sands & Co	3,000.00
Geo. Howard	3,000.00
Frances Bros. & Co	50,000.00
Wells, Herrick & Hicks	27,000.00
G. B. Leighton	20,000.00
McMichael & Co	60,000.00
Conner & Co	60,000.00
Kohn & Co	40,000.00
J. S. Jones	70,315.27
Guy Phillips	80,375.00
Frank J. Gould	60,000.00

Gessler & Krausnick	$10,000.00
Edwin Gould	175,000.00
American Car & Foundry Co	10,000.00
Rudolph Keppler	2,000.00
H. B. Henson	3,000.00
	5,828,168.30
Less amount received by trust company, account of demand notes, to be deducted from amount set opposite name of St. Louis Union Trust Co	774,910.85
	5,053,257.45
Add:	
Deposit by syndicate managers, Nov. 5, 1905	1,000,000.00
Received from Geo. J. Gould, eighth call, Nov. 5, 1905	230,000.00
Received from Geo. J. Gould, 6 per cent interest, Nov. 5, 1905	26,846.07
Total	6,310,103.52

The Little Kanawha syndicate was formed to acquire railroad property and franchises and to construct and establish a line of railroad transportation from a connection with the Wheeling & Lake Erie Railroad at Zanesville, Ohio, via Parkersburg and Burnsville, to Belington, W. Va., and there connect with the West Virginia Central & Pittsburgh Railway, now a part of the Western Maryland Railway, and to acquire valuable coal lands in central and northern West Virginia.

During the latter part of 1902 or early in 1903 the Fuller syndicate was organized and purchased the property and franchises of the West Virginia Central & Pittsburgh Railway Company, and subsequently acquired control of the Western Maryland Railroad Company from the city of Baltimore, Md. Subsequently George J. Gould and his associates acquired control of the Western Maryland Railroad and the West Virginia Central Railway companies and merged the West Virginia Central into the Western Maryland Railroad Company, which company constructed an extension from Big Pool to Cumberland, Md., and established a through line from Baltimore to Belington.

The Pittsburgh-Toledo syndicate obtained control of the Wheeling & Lake Erie Railroad Company and constructed the Wabash Pittsburgh Terminal Railway from Pittsburgh Junction on the Wheeling & Lake Erie Railroad to Pittsburgh, Pa. The object of this syndicate was to enable the Wabash Railroad Company to establish a through line from Toledo, via Pittsburgh, and the "New York, Pittsburgh & Chicago" survey to New York.

The Ann Arbor syndicate was organized to establish a line of transportation across Michigan and Lake Michigan to Milwaukee, Manistee, and Menominee, into what is called cross-lake territory, as a feeder for the Wabash & Lake Erie, a part of the Wabash Railroad.

After the Gould interests obtained control of the West Virginia Central & Pittsburgh Railway and the Western Maryland Railroad and merged them, the establishing of a line of railroads from Zanesville, Ohio, to Belington, W. Va., became a part of the general plan of George J. Gould to form a transcontinental line from San Francisco, Cal., to Baltimore, Md., via the Western Pacific, Denver & Rio Grande, Missouri Pacific, Wabash, Wheeling & Lake Erie, Little Kanawha, Burnsville & Eastern, Belington & Northern, and Western Maryland. It appears that the construction of the Wabash Pittsburgh Terminal Railway into Pittsburgh proved to be expensive, and the construction of the "New York, Pittsburgh & Chicago" line from Pittsburgh to New York was not undertaken.

Another part of the general plan was to construct a through line from a connection with the Wabash Railroad at Toledo, Ohio, via Pittsburgh Junction, and from Pittsburgh, Pa., to Baltimore, via Belington, W. Va., and the Western Maryland Railroad. To accomplish this there was planned a line of railroads from Hickory and Bishop, Pa., points on the Wabash Pittsburgh Terminal Railway, through Washington and Greene counties, in Pennsylvania, and Monongalia and Marion counties to Fairmont, in West Virginia, thence up the Monongahela and Tygarts Valley rivers to a connection with the Western Maryland Railroad at Belington, W. Va., with certain branch lines that would have reached the rich coal fields in Washington and Greene counties, Pa., and in northern and central West Virginia.

For the purpose of establishing a through line of railway transportation from Zanesville, Ohio, to Belington, W. Va., the Little Kanawha syndicate, through its managers and agents, acquired the franchises and property of the following railroad companies: Zanesville, Marietta & Parkersburg Railroad Company; Marietta, Columbus & Cleveland Railroad Company; Parkersburg Bridge & Terminal Railroad Company; Little Kanawha Railroad Company; Burnsville & Eastern Railroad Company; Belington & Northern Railroad Company.

The Buckhannon & Northern Railroad also was purchased by the Little Kanawha syndicate, and the Greene County Railroad Company was organized by persons associated with or in the employ of the Gould and Ramsey interests for the purpose of obtaining an outlet for the Wabash Pittsburgh Terminal Railway south to Belington, W. Va., through rich coal fields in Pennsylvania and West Virginia.

A sketch map of the Little Kanawha syndicate lines and coal properties, including the Greene County Railroad, prepared by Samuel D. Brady, chief engineer for the Little Kanawha syndicate lines, dated December 2, 1914, shows the location of the proposed through line from Zanesville, Ohio, to Belington, W. Va., and the proposed line from Hickory and Bishop, Pa., to Belington, as well as the location of coal properties in West Virginia acquired by the Little Kanawha syndicate, concerning which further information is hereinafter given. A copy of this sketch map will be found in Appendix No. 5 of this report.

On December 12, 1902, George J. Gould, Joseph Ramsey, jr., and William E. Guy, syndicate managers, made a contract with McArthur Brothers Company and Rinehart, Dennis & Company for the construction of the eastern extension of the Little Kanawha Railroad from Sandy Bend milepost 19, about 20 miles from Parkersburg, to Burnsville, a distance of about 71 miles, which work was to be commenced within 10 days after date of agreement and be completed by April 1, 1904.

Construction work was commenced within the time specified in the agreement and pushed vigorously until about May 2, 1903, at which time orders were issued by the syndicate managers to suspend the work.

On May 2, 1903, McArthur Brothers Company and Rinehart Dennis & Company submitted a proposition to George J. Gould, Joseph Ramsey, jr., and William E. Guy, syndicate managers, with respect to suspending construction work on the eastern extension of the Little Kanawha Railroad and transferring the men, tools, and machinery of the contractors for work on the Zanesville, Marietta & Parkersburg and Buckhannon & Northern railroads.

In lieu of the construction work on the eastern extension of the Little Kanawha Railroad, McArthur Brothers Company were given similar work on the Zanesville, Marietta & Parkersburg Railroad, and Rinehart, Dennis & Company was awarded construction work on the Buckhannon & Northern Railroad. The Little Kanawha syndicate paid all expenses incurred in removing men, tools, and machinery of the contractors. Construction of the Little Kanawha extension was suspended and finally abandoned on account of the inability of the syndicate to provide the money for labor and materials necessary to complete the work.

To July 1, 1905, the Little Kanawha syndicate expended $406,050.40 for engineering, real estate, rights of way, and construction of the eastern extension of the Little Kanawha Railroad. The total expenditures account of this extension to June 30, 1914, amounted to $429,051.26. The percentage of work completed on this proposed extension was as follows:

	Per cent.
Grading	0. 09
Tunnels	.01
Masonry	1. 5
Bridges	.00
Trestles	.00

That part of the extension between Burnsville and Copens Run, a distance of 4.10 miles, is occupied by the Coal & Coke Railway Company, under an agreement, dated August 24, 1904, between the Burnsville & Eastern Railroad Company, the Little Kanawha Railroad, and the Coal & Coke Railway Company.

The real estate now owned by the Little Kanawha Railroad Company is as follows:

One tract of 36½ acres of land near Elizabeth, purchased for station and other purposes, rent being derived therefrom in the amount of $46 per year.

One house and lot in Brookville, which rents for $4 per month.

One warehouse at Owensport, on rented land, from which a net rent of $90 per year is derived.

One lot in Grantsville that yields a rental of $15 per annum.

The rights of way of the company on the proposed extension from Mile Post 19 to Burnsville are as shown below:

Acquired rights of way of 46.75 miles, for which deeds have been delivered and recorded.

Unacquired rights of way of 1.50 miles, consisting of five tracts valued at $460, for which vouchers have not been prepared on account of defective titles.

Acquired right of way of 0.84 mile, consisting of six tracts valued at $411, for which deeds have not yet been delivered on account of imperfect titles and summary proceedings, but for the acquisition of which funds have been appropriated covering the $411.

Unacquired right of way of 17.81 miles, of which distance 6.29 miles have been optioned and part of the options accepted.

Trackage rights covering 4.10 miles, from Copens Run to Burnsville, occupied by the Coal & Coke Railway Company, under agreement.

The total number of miles of the proposed extension is 71.

The proposed tunnels on the extension aggregate 10,120 feet and are as follows:

	Feet.		Feet.
Tunnel No. 1	1,550	Tunnel No. 6	900
Tunnel No. 2	1,000	Tunnel No. 7	1,280
Tunnel No. 3	2,200	Total	10,120
Tunnel No. 4	2,300		
Tunnel No. 5	890		

The proposed Little Kanawha railroad bridges on this extension are as shown below:

Channel.	Span. Feet.	Remarks.
No. 1, 420 feet	250	Girders at each end.
No. 2, 340 feet	200	Do.
No. 3, 360 feet	200	Do.
No. 4, 320 feet	200	Do
No. 5, 200 feet		Two girders, 80 and 120 feet, respectively.
No. 6, 270 feet	160	Girders at each end.

The Little-Kanawha did not file annual reports with this Commission showing its assets, liabilities, and results of operation prior to September 28, 1902. The first report filed covered the period beginning November 22, 1901, and ending June 30, 1902.

The capital and income accounts, etc., of the company for the period beginning November 22, 1901, and ending June 30, 1914, taken from annual reports to this Commission, are briefly stated in a table in Appendix No. 6 of this report. From this table it will be seen that the Little Kanawha Railroad has been operated at a considerable loss since June 30, 1906. The loss for the eight years ended June 30, 1914, aggregates the sum of $150,328.82. The table shows a substantial decrease in freight revenue since 1903.

During 1904 the United States government purchased the locks and dams on the Little Kanawha River and made lockage free, since which time the earnings of the Little Kanawha Railroad have gradually decreased. There are a number of small gasoline crafts on the river that handle considerable traffic, although they have no fixed rates. It is difficult for the Little Kanawha to meet this kind of competition.

From a report of the West Virginia geological survey published in 1911, it appears that the Little Kanawha River is navigable from its mouth for a distance of 40 or 50 miles by the aid of locks and dams completed by the United States government. Until the Little Kanawha Railroad is extended above slack-water navigation, river transportation will seriously affect the revenues of the railroad company.

The Little Kanawha Railroad does not enter Parkersburg on its own rails. Freight, passengers, mail, and express are transferred between South Parkersburg and the Ohio River railroad station in Parkersburg by the Parkersburg, Marietta & Interurban Railway. Formerly passengers and freight were transferred by barge and boat across the Little Kanawha River.

The railroad now is in poor condition for operation. The weight of the rail in track of standard gauge is 56 pounds per yard. The track is ballasted with sand and loam; no good material for ballast is available along the line. The bridges and trestles are in bad condition and should be renewed or filled in. The roadbed along the river is subject to damage from floods.

The equipment in service on June 30, 1914, consisted of one second-class passenger car, one combination car, two box cars, four flat cars, and two locomotives. The two locomotives were leased. It is understood that all of this equipment is more or less of an obsolete type and in poor condition for service.

The assets and liabilities of the Little Kanawha Railroad Company on June 30, 1914, as shown by its condensed general balance sheet, are as follows:

Assets:			
Expenditures for road and equipment		$522,239.86	
Working assets		8,820.22	
Profit and loss—Debit balance		117,401.13	
			$648,461.21
Liabilities:			
Stock—			
Common	$359,500.00		
Preferred	150,000.00		
		509,500.00	
Working liabilities		138,093.83	
Reserve for accrued depreciation		867.38	
			648,461.21

The annual report for the year ended June 30, 1914, discloses that the working liabilities of $138,093.83 consists of advances or contributions made by the Pittsburgh & Lake Erie Railroad Company, the Baltimore & Ohio Railroad Company, and the Pennsylvania Company.

The operating results of the company for the fiscal year ended June 30, 1914, as disclosed by its annual report to the Commission, are briefly stated below:

Operating revenues:		
Freight	$11,811.14	
Passenger	18,502.30	
Excess baggage	97.26	
Mail	1,892.19	
Express	835.49	
Switching	2,171.50	
Nontransportation	81.70	
		$35,391.58
Operating expenses:		
Maintenance of way	16,084.62	
Maintenance of equipment	1,385.70	
Transportation	26,834.97	
General	2,921.57	
		47,226.86
Net deficit		11,835.28
Railway tax accruals	2,062.42	
Hire of equipment	6,612.86	
Miscellaneous rents	697.13	
Total income charges		9,372.41
Balance transferred to debit of profit and loss		21,207.69

The traffic and mileage statistics of the company for the same year are as shown below:

Passengers carried	53,470
Passengers carried 1 mile	960,327

Freight traffic movement:	Tons.
Products of agriculture	36
Products of mines	1,397
Products of forests	812
Manufactures	582
Merchandise	2,454
Miscellaneous	1,925
Total	7,206
Tons carried 1 mile	179,690
Mixed train-miles:	
Revenue	37,380
Nonrevenue	78
Total	37,458
Freight car-miles:	
Loaded	31,609
Empty	6,902
Total	38,511

From a review of the annual reports of the company to this Commission, supplemented by further investigation, it is found that the Little Kanawha Railroad has been operated by the Baltimore & Ohio Railroad Company as agent since May, 1908. The reports show, however, that the office of president has been filled by an officer of either the Pittsburgh & Lake Erie Railroad Company or the Baltimore & Ohio Railroad Company since July, 1910, and that one of these carriers furnishes a representative to act as president of the company for periods of one year or more at a time. While the Pennsylvania Company has been represented on the board of directors it has apparently not been active in the management of the Little Kanawha. J. T. Blair has been an officer of the company since November 15, 1901, and is now secretary and treasurer, with offices at 541 Oliver Building, Pittsburgh, Pa.

The census of 1910 shows the population of Wirt, Calhoun, and Gilmer counties to be 9,047, 11,258, and 11,379, respectively. According to the testimony of S. A. Hayes, collector of internal revenue, the population of Gilmer and Calhoun counties has decreased since 1910, the decrease in Gilmer county being about 400. There has been some increase in the population of Wirt county since the last census made by the United States government.

The Little Kanawha Railroad, although projected to extend from Parkersburg to Burnsville, through the counties of Wood, Wirt, Calhoun, Gilmer, and Braxton, has been built only to about the center of Wirt county. Two railroads extend through Braxton county, two in Wood county, and none in Calhoun county. The Coal & Coke

Railway extends a very short distance through Gilmer county near the Gilmer-Braxton county line.

From the report of the West Virginia geological survey of 1911, it appears that the area through which the Little Kanawha Railroad was projected in Wirt and Calhoun counties is a highly desiccated plateau 1,000 to 1,500 feet above tide. Water erosion has reduced this original plateau practically all to slope, the streams flowing through V-shaped valleys. Numerous ridges and hills, ranging in elevation from 1,000 to 1,500 feet above sea level and capped with resistant layers of sandstone and other rock strata, remain as evidence of this original plateau.

Across central Wirt county and northern Calhoun county, the Little Kanawha River has cut a deep gorge from one-fourth to one-half mile wide and 300 to 500 feet deep through nearly parallel layers of rock strata. The valley walls are usually steep and rough, often almost straight up, but on reaching the summits the general surface is rolling except when trenched by runs and creeks.

The present flood plain of the Little Kanawha River is represented by narrow strips of rich bottom land along the shore that widen out first on one side and then on the other. River terraces are found at several points along the valley walls of the Little Kanawha River in Wirt and Calhoun counties. Elizabeth and Palestine, Wirt county, and Grantsville, Calhoun county, are built on old terraces of the Little Kanawha.

The tributaries of the Little Kanawha River have eroded deep canyonlike gorges with steep valley walls in this area. It is stated that these steep hillsides are adapted to grazing, and should not be tilled for grain and similar products that require cultivation. The limestones of the Dunkard and Monongahela series of rocks in the northern end of the state have been largely replaced by dark red limy shales in Wirt and Calhoun counties, and their outcrops there produce a fertile soil adapted to blue grass. When cultivated along these steep slopes, however, the soil washes badly and frequent slips result, so that the land becomes impoverished.

From the letter of Dr. I. C. White, state geologist, to the governor of West Virginia, dated July 1, 1911, transmitting the detailed report and accompanying geologic, topographic, and soil maps on the counties of Calhoun, Roane, and Wirt, prepared by assistant Ray V. Hennon, the following statement is taken:

> The underground wealth of this area consists largely of petroleum and natural gas deposits, since aside from sandstone, brick clays, and shales the only other mineral occurring in commercial quantity within this district is coal, and it is both limited in quantity and poor in quality, since by far the larger portion of these three counties is within the barren coal area of the state. True, there appears to be some small areas of deep-lying coal in Calhoun and Roane, probably belonging to the Kanawha series,

but neither the thickness nor quality of these deeply buried coal beds can be determined accurately by the oil-well drill, and hence their quantity can only be approximated. The greatest and most enduring source of natural wealth for this district lies in the soils which have been studied, described, and mapped by the soil experts of the United States Department of Agriculture. These descriptions and soil maps accompany this report and should prove of great value to the agricultural interests.

The splendid virgin forests which only a few years ago covered this entire area are now matters of history, since excepting a few thousand acres of virgin timber along the southeastern border of Calhoun county only farmers' wood lots remain. Much of the land is too rough and steep ever to be arable, and the best use to which it is adapted is reforestation. The state should encourage the agricultural interests along that line by so changing its taxation policy as to give practical exemption to such lands in process of reforestation, since otherwise much of the good soil higher up on the broad ridges will be destroyed by the gradual encroachment of erosion from below on the steep, unprotected slopes. The underlying rocks out of which all our best soils have been derived by slow disintegration through thousands of years are very soft and easily attacked by the erosive action of water cutting gullies deeper and deeper until vast areas of deforested lands will become desolate wastes, and the precious soils, the accumulation of centuries, will rapidly disappear with every heavy rain unless the forces of destruction be arrested by reforestation and the proper covering of the soil with grasses and other forage plants.

Complete data with respect to the natural resources and topography of Gilmer, Braxton, and Lewis counties based upon geological and other governmental surveys is not available, but it is understood that they are substantially similar to those in the county of Calhoun except that the country is not so rough and steep and that the eastern part of Gilmer county, the southwestern portion of Lewis county, and portions of the northwestern part of Braxton county, along the waters of the Little Kanawha River, are underlaid with Pittsburgh vein coal in commercial quantities.

A copy of the report on the examination of the Little Kanawha coal fields under date of December 16, 1899, made by Logan M. Bullitt, a mining engineer of Philadelphia, Pa., to C. M. Wicker, of 15 Wall street, New York City, covering from 35,000 to 40,000 acres, the greater part lying mainly in Gilmer county, some lying in Lewis county, and a little in Braxton county, was submitted in evidence. It seems that the Little Kanawha was originally projected to reach these particular coal lands, about 25,000 acres of which were afterwards acquired by the Braxton Coal Company, by it sold and conveyed to Richard C. Kerens, trustee for himself, Henry G. Davis, and Stephen B. Elkins, and subsequently transferred to the Coal & Coke Railway Company.

It is estimated that about 120,000 acres of land lying in the eastern portion of Gilmer, the northwestern and western parts of Braxton, and the western half of Lewis counties, that are drained by the Little Kanawha River and its tributaries, are underlaid with Pittsburgh vein coal in commercial quantities. The general dip or incline of this coal is toward the northwest, and it rises toward the southeast. About 10 miles south of the Little Kanawha River it is found in broken areas on the tops of hills. The Coal & Coke Railway Company owns from 40,000 to 45,000 acres of the most valuable coal lying along the waters of the Little Kanawha River in the eastern part of Gilmer, the western part of Lewis, and portions of the northwestern part of Braxton counties. The average thickness of this coal is about 5 feet, and it is estimated that it will produce about 5,000 tons per acre. The Pittsburgh & Lake Erie Railroad, the Baltimore & Ohio Railroad, and the Pennsylvania companies jointly own about 30,810.22 acres of coal lands and coal and mining rights in this region, of which 1,640.55 acres are on the southern border of Harrison county, 17,475.15 in the northwestern part of Lewis county, 4,842.51 in the eastern and southeastern parts of Gilmer county, and 6,852.01 in the northwestern part of Braxton county. The thickness of this coal varies. It will possibly average about 4 or 5 feet in Gilmer and Braxton counties and from 5 to 6 feet in Lewis and Harrison counties.

The Kanawha Coal & Coke Company owns about 11,000 acres of coal in the eastern part of Gilmer county. The Wilbur Coal Company owns about 25,000 acres along Finks Creek, north of the Little Kanawha River. The remainder of the 120,000 acres of coal lying in the basin drained by the Little Kanawha River and tributaries, other than shown above, is owned by individuals or farmers in small lots or controlled by options. The coal in the entire basin will possibly average between 4 and 5 feet in thickness. A considerable part of this coal lies in broken areas. Erosion has caused some of it to disappear along the streams, and the outcrop on or near the tops of hills leaves more of it in broken areas. It is doubtful whether the thickness, quantity, or accessibility of much of the coal in these broken areas is such as will at this time warrant successful and profitable mining operations.

There are three veins of coal underlying the lands in these counties. The Pittsburgh vein lies sufficiently near the surface to be mined in commercial quantities in the greater part of the field. The other two veins lie below and are so deeply buried as to make mining operations expensive and unprofitable under present commercial conditions.

The Coal & Coke Railway Company has a line of transportation extending through Braxton county and can reach practically all the coal in commercial quantities in the eastern part of Gilmer, the western part of Lewis, and the northwestern part of Braxton counties by constructing branch lines not exceeding 5 or 10 miles in length. The Baltimore & Ohio Railroad extends through Braxton county, and by the extension of branches not exceeding 10 or 15 miles in length can reach the greater portion of the coal lands lying in the northwestern part of Lewis and the southern part of Harrison counties.

The timber in Gilmer, Braxton, and Lewis counties that could be reached by the Little Kanawha Railroad, if it were extended as finally projected, is limited in area and quantity, and the agricultural resources along the waters of the Little Kanawha River through which the railroad is projected are not sufficient to be very attractive or profitable to a railroad from a freight traffic standpoint.

The Little Kanawha syndicate, through its managers and agents, acquired the railroad property and franchises of the following corporations: Zanesville, Marietta & Parkersburg Railroad Company; Marietta, Columbus & Cleveland Railroad Company; Parkersburg Bridge & Terminal Railroad Company; Little Kanawha Railroad Company; Burnsville & Eastern Railroad Company; Belington & Northern Railroad Company; Buckhannon & Northern Railroad Company.

The syndicate also acquired certain coal properties, which are hereinafter briefly described.

A brief corporate history of the above-named corporations and of the Greene County Railroad, the State Line & Southern Railroad, and the Fairmont & Southern Railroad companies appears later in this report.

After the Little Kanawha syndicate managers had expended about 70 per cent of the moneys obtained from the syndicate subscribers, leaving about $2,200,000 available, which was inadequate to complete the construction of the Little Kanawha Railroad and other railroads of the syndicate, it suspended work during May, 1903. The Fuller syndicate acquired control of the Western Maryland Railroad Company during the early part of 1903. While George J. Gould was interested in that road, there were other strong interests in the company which controlled the West Virginia Central & Pittsburgh Railway Company. There was some question as to whether the Western Maryland Railroad should be extended from Belington across West Virginia via the Little Kanawha Valley route, or to Pittsburgh via New Haven and the Pittsburgh & Lake Erie Railroad. The matter rested in that condition until early in 1905. The syndicate subscribers other than the direct Gould interests became uneasy. Their money had been invested in the syndicate properties for several years without yielding them any interest thereon.

During the early part of 1905, Joseph Ramsey, jr., made an effort to obtain money from the Union Trust Company of Pittsburgh, to be expended in completing the construction of the Little Kanawha syndicate properties. He desired to build a line from Pittsburgh south into the Guffey and other coal properties in the Fairmont [illegible] as an independent project. This project involved the acquisition of the Guffey coal and mining rights, the property and franchises of the Greene County and Buckhannon & Northern railroads, and the construction of a line south to Belington that would connect with the Pittsburgh & Lake Erie, the Wabash Pittsburgh Terminal, and the Western Maryland railroads, and would develop coal and coke traffic destined to Pittsburgh and points on the great lakes and in the west and northwest.

To finance the project, the Union Trust Company of Pittsburgh was willing to loan money to be secured by a mortgage on all the property and franchises of the Little Kanawha syndicate. Mr. Ramsey desired to obtain money under separate mortgages, with the properties so segregated that they could be disposed of as separate units, but failed to obtain a loan from the trust company under such conditions.

J. M. Schoonmaker, vice president of the Pittsburgh & Lake Erie Railroad Company, was vice president of the Union Trust Company of Pittsburgh, and in that position obtained knowledge of the proposed financial arrangement to build a railroad from Pittsburgh south to Belington. He was in favor of the loan as an official of the trust company.

Mr. Ramsey's relations with George J. Gould were practically severed at this time. He had formerly been president of the Wabash Railroad Company. Having failed to obtain money to complete the Little Kanawha syndicate properties for operation and to construct an independent line from Pittsburgh to Belington, he desired to sell the coal and railway properties and franchises of the syndicate. During the first half of June, 1905, Mr. Ramsey, as Little Kanawha syndicate manager, entered into negotiations with W. H. Newman and J. M. Schoonmaker, who were president and vice president, respectively, of the Pittsburgh & Lake Erie Railroad Company, for the sale to them of the property and franchises of the Little Kanawha syndicate and of the Greene County Railroad Company, a Ramsey organization. On June 17, 1905, these gentlemen entered into a memorandum of agreement, or option, concerning the sale and purchase of all these properties, in which agreement the Greene County Railroad Company is referred to as the "Washington & Greene County R. R." A copy of this memorandum of agreement will be found in Appendix No. 7 of this report.

This memorandum of agreement gave Messrs. Newman and Schoonmaker the option of purchasing the Guffey coal properties, located in Marion, Monongalia, and Wetzel counties, in West Virginia, and the property and franchises of the Buckhannon & Northern and Greene County railroad companies for the sum of $7,250,000, about

$1,250,000 less than the amount agreed upon to be paid for all the properties of the syndicate and the Greene County Railroad Company. This investigation discloses that the Pittsburgh & Lake Erie purchased all these properties in order to obtain the Kincheloe, Fulton, and Arnold coal properties, aggregating about 30,810.22 acres, located in Gilmer, Braxton, Lewis, and Harrison counties, W. Va., in which the syndicate had invested about $1,175,408.59. To obtain these properties, it became necessary to purchase from the syndicate the majority of the stock of the Little Kanawha and the property and franchises of the Marietta, Columbus & Cleveland; the Zanesville, Marietta & Parkersburg; the Parkersburg Bridge & Terminal; the Burnsville & Eastern; and the Belington & Northern railroad companies. Mr. Schoonmaker then estimated that the coal properties of the syndicate in Gilmer, Braxton, Lewis, and Harrison counties ought to be worth $100 an acre. It therefore appears that the purchasers of the properties and franchises of the Little Kanawha syndicate believed that the Kincheloe, Fulton, and Arnold coal properties were worth the additional sum of $1,500,000 required to obtain all of the properties of the syndicate and the Greene County Railroad Company, and that they were acquiring the majority of the stock of the Little Kanawha practically without cost to them.

The memorandum of agreement provided that Messrs. Newman and Schoonmaker were to have until the 24th day of June, 1905, to take the properties under the option and cable their decision to Mr. Ramsey at Queenstown. Mr. Ramsey informed these gentlemen that if he could not sell the properties to them he would sell to George J. Gould, who was then abroad. One of the purposes of having a period of seven days to reach a decision was to submit the proposition of purchasing the properties to William K. Vanderbilt, who was then in Paris.

It appears that W. H. Newman and J. M. Schoonmaker were acting for the Pittsburgh & Lake Erie Railroad Company in purchasing the property and franchises of the Little Kanawha syndicate. A binding agreement for the purchase and sale of the Little Kanawha syndicate properties was entered into by the Little Kanawha syndicate and the Pittsburgh & Lake Erie September 1, 1905. A copy of this agreement will be found in Appendix No. 8 of this report. On October 28, 1905, these properties were transferred and assigned to the latter company by the syndicate.

On September 25, 1905, the Pittsburgh & Lake Erie entered into a binding agreement with Joseph Ramsey, jr., James T. Blair, James W. Patterson, Elwood D. Fulton, and A. M. Neeper for the purchase and sale of the property and franchises of the Greene County Railroad Company, a corporation organized under the laws of the state of Pennsylvania for the purpose of constructing and operating a railroad between Washington and Waynesburg, Pa., and various branches thereof in Allegheny, Washington, and Greene counties in Pennsylvania. A copy of this agreement will be found in Appendix No. 9 of this report. On November 2, 1905, the sale of the stock of the Greene County Railroad Company was fully accomplished by the payment of the purchase money to the stockholders and the stock transferred to the Pittsburgh & Lake Erie.

On the 26th day of February, 1906, the latter company sold and transferred to the Pennsylvania Company one-fourth of its interest and to the Baltimore & Ohio Railroad Company one-fourth of its interest in the property, rights, and franchises acquired by it from the Little Kanawha syndicate September 1, 1905, and in 5,000 shares, each of the par value of $50, of the capital stock of the Greene County Railroad Company, all of which property, rights, franchises, and securities were transferred and delivered to the Union Trust Company of Pittsburgh to be held by it as trustee for the joint owners thereof, under an agreement, a copy of which will be found in Appendix No. 10 of this report.

On or about March 21, 1908, the Pittsburgh & Lake Erie acquired from Wood county, W. Va., 1,800 shares of the common stock of the Little Kanawha by the payment of $60,000 and other valuable considerations, and subsequently sold and transferred to the Pennsylvania Company one-fourth of its interest and to the Baltimore & Ohio one-fourth of its interest in the 1,800 shares of such stock, which stock was transferred to the Union Trust Company of Pittsburgh to be held by it as trustee for the benefit of the joint owners thereof.

The transfer of one-half of the interest in these properties was made by the Pittsburgh & Lake Erie on the basis of actual cost, primarily for the purpose of sharing the burden of its investment in such properties and franchises with the Baltimore & Ohio Railroad and the Pennsylvania companies.

The sale to these carriers of a one-half interest in these properties and franchises by the Pittsburgh & Lake Erie Railroad Company was in harmony with the spirit and general terms of a so-called gentlemen's agreement entered into by John Newell, former president of the Pittsburgh & Lake Erie and George B. Roberts, former president of the Pennsylvania Railroad Company, during the early part of the decade ended December 31, 1889, substantially to the effect that neither of these companies would extend its railroads into the territory of the other, except jointly or by mutual consent, and particularly that the New York Central lines would not extend their railroads across the main line of the Pennsylvania Railroad Company east of Pittsburgh, Pa., into southwestern Pennsylvania and into West Virginia.

The Pittsburgh & Lake Erie desired to extend its lines up the Monongahela River into the coal fields drained by that river and its tributaries and obtain a large volume of coal traffic which it would have for movement over the Monongahela Railroad to Brownsville, Pa. The Pennsylvania Railroad had its own line on the western side of the river to West Brownsville, and it could extend its road up the river entirely independent of the Pittsburgh & Lake Erie. The Baltimore & Ohio Railroad Company had located a line from Eighty-four, Pa., down through Washington and Greene counties into West Virginia. In view of the conditions described above, W. H. Newman believed it would be a "neighborly act" to offer the Baltimore & Ohio and the Pennsylvania railroad companies a one-half interest in the option for the purchase of the property and franchises of the Little Kanawha syndicate and of the Greene County Railroad Company under the agreement between W. H. Newman, J. M. Schoonmaker, and Joseph Ramsey, jr., dated June 17, 1905. Mr. Schoonmaker concurred in this conclusion. The offer was made at a meeting in New York and accepted by the presidents of the Baltimore & Ohio and the Pennsylvania railroad companies, and Mr. Ramsey was advised that the property would be accepted under the option.

In accordance with the spirit of the so-called gentlemen's agreement referred to above, the Pittsburgh & Lake Erie and the Pennsylvania Railroad Company had previously entered into an agreement, dated November 22, 1901, for the management of the Monongahela Railroad Company and the operation of its lines. A copy of this agreement, with amendments dated June 22, 1904, and May 8, 1911, will be found in Appendix No. 11 of this report. The Monongahela Railroad Company was incorporated December 31, 1900, under the laws of the state of Pennsylvania, for the purpose of constructing and operating a railroad and branches thereof between Brownsville, West Brownsville, and Redstone Junction, Pa., and the West Virginia-Pennsylvania state line, near Point Marion, Pa.

The Little Kanawha syndicate properties and franchises were acquired by the Pittsburgh & Lake Erie Railroad Company for the following purposes:

1. To obtain valuable coal properties lying along and adjacent to the waters of the Monongahela and Little Kanawha rivers, in West Virginia.
2. To obtain the property and franchises of the Buckhannon & Northern Railroad Company to be used in constructing a railroad from a connection with the Monongahela Railroad at a point on the West Virginia-Pennsylvania state line along the Monongahela and Tygarts Valley rivers to Belington, with branch or lateral lines into the rich coal fields of West Virginia.

This investigation discloses that J. M. Schoonmaker, while conducting negotiations with Joseph Ramsey, jr., syndicate manager, for the purchase of the property and franchises of the Little Kanawha syndicate and the Greene County Railroad Company, was fully informed by Mr. Ramsey of the plans of the syndicate and of George J. Gould, Mr. Ramsey, and their associates with respect to constructing and establishing lines of railroads; the property and franchises of the syndicate and of the Greene County Railroad Company; the unsuccessful efforts of the syndicate managers to obtain the money necessary to complete and establish such lines; the failure of Mr. Ramsey as syndicate manager to obtain money from the Union Trust Company of Pittsburgh to finance the construction of a line of railroads from Pittsburgh south to the Guffey and other coal properties in the Fairmont region, as an independent project, to be secured by separate mortgages on the separate properties of the syndicate and the Greene County Railroad Company; and the intention of Mr. Ramsey to dispose of the properties to Mr. Gould, if they were not accepted by W. H. Newman and J. M. Schoonmaker by June 24, 1905, under the terms of an agreement between Messrs. Newman, Schoonmaker, and Ramsey dated June 17, 1905, a copy of which will be found in Appendix No. 7 of this report.

The plans of George J. Gould, William E. Guy, and Joseph Ramsey, jr., the syndicate managers, were substantially as follows:

1. To construct and establish a line of railroads from Zanesville, Ohio, via Parkersburg and Burnsville to Belington, W. Va., and certain branch lines that would reach the coal fields in Gilmer, Braxton, Lewis, and adjacent counties, in West Virginia, in competition with the Baltimore & Ohio Railroad and the Coal & Coke Railway, and would form a through line from a connection with the Wheeling & Lake Erie Railroad at Zanesville, Ohio, to Baltimore, Md., via Belington and the Western Maryland Railroad.

The establishing of this line of railroads would have made it possible for George J. Gould and his associates to form a transcontinental line from San Francisco, Cal., to Baltimore, Md., as heretofore explained in this report.

2. To construct a line of railroads from Hickory and Bishop, Pa., points on the Wabash Pittsburgh Terminal Railway, through Washington and Greene counties, in Pennsylvania, and Monongalia and Marion counties, in West Virginia, to Fairmont, thence up the Monongahela and Tygarts Valley rivers to a connection with the Western Maryland Railroad at Belington, W. Va., together with certain branch lines that would reach the rich coal fields in Washington and Greene counties, Pa., and in northern and central West Virginia, in competition with the Baltimore & Ohio Railroad Company, and

would form a line from a connection with the Wabash Railroad at Toledo, Ohio, via Pittsburgh Junction, and from Pittsburgh, Pa., to Baltimore, Md., via Belington and the Western Maryland Railroad.

The New York Central interests were anxious to extend their lines up the Monongahela River into the West Virginia coal fields lying along the waters of that river to obtain for the Pittsburgh & Lake Erie Railroad and other New York Central lines a large coal traffic that would move down the Monongahela Valley to Pittsburgh and to points reached via that gateway. The available coal traffic of the Pittsburgh & Lake Erie Railroad Company in what is known as the Pittsburgh basin was largely confined to that portion of the coal field lying between the Youghiogheny and Monongahela rivers in Pennsylvania.

The New York Central lines were not immediately concerned in the coal region on the headwaters of the Little Kanawha River from a railroad traffic standpoint, as the natural outlet of the coal in that region is to the west and down the Little Kanawha and Ohio rivers. Upon the representations of Joseph Ramsey, jr., Messrs. Newman and Schoonmaker considered the Kincheloe, Fulton, and Arnold coal properties a good investment under the terms of the proposed sale to them, as they believed these coal properties in Gilmer, Braxton, Lewis, and Harrison counties, W. Va., could be made available and be operated or sold to advantage.

Immediately after the purchase of the Little Kanawha syndicate properties Mr. Schoonmaker inspected the Little Kanawha Railroad and found it to be in a very poor condition for operation, and to place it in proper condition and extend it would involve the expenditure of a large amount of money. The Marietta, Columbus & Cleveland Railroad was found to be in a worse condition than the Little Kanawha Railroad. As it was not self-supporting and could not earn the interest on its bonds, the property was surrendered to the bondholders. The Pittsburgh & Lake Erie and Pennsylvania companies were not interested in developing traffic moving down the Little Kanawha Valley. The Baltimore & Ohio enjoyed a large coal tonnage and held only a one-fourth interest in the majority of the stock of the Little Kanawha. The purchasers of the properties concentrated their efforts in the extension of the Buckhannon & Northern Railroad into the Guffey coal fields and adjacent properties to develop a more productive traffic for their lines.

For the reasons stated above no effort has been made by the present owners of the majority of the stock of the Little Kanawha to extend the railroad as projected under the company's charter. Efforts have been and are being made by these owners to sell their stock in the company and their coal properties in Gilmer, Braxton, Lewis, and Harrison counties.

The Buckhannon & Northern Railroad has been constructed from a point of connection with the Monongahela Railroad at the West Virginia-Pennsylvania state line near Point Marion, Pa., up the banks of the Monongahela River to Fairmont, W. Va., together with certain branch lines in the Fairmont coal fields. The Baltimore & Ohio Railroad Company sold its one-fourth interest in the Buckhannon & Northern Railroad Company to the Pennsylvania Company during March, 1914, in order to comply with the laws of the state of West Virginia with respect to the ownership of competing railroads. That company is now being merged with the Monongahela Railroad Company under the corporate name of the Monongahela Railway Company and will soon be opened for commercial operations. The proposed merger is subject to the approval of the Public Service Commission of the Commonwealth of Pennsylvania under the laws of that state.

A copy of the agreement for the consolidation of the Monongahela Railroad Company and the Buckhannon & Northern Railroad Company, dated November 24, 1914, executed by officers and directors of these companies and approved by a majority of their stockholders, will be found in Appendix No. 12 of this report.

The Pennsylvania Company acquired the interest of the Baltimore & Ohio in the property and franchises of the Buckhannon & Northern, the Fairmont & Southern Railroad Company, and the State Line & Southern Railroad Company for the sum of $643,566.81, which represented the investment of the Baltimore & Ohio in these properties and interest on amounts advanced for construction and other expenditures in connection therewith.

The entire investment of the Pittsburgh & Lake Erie, the Baltimore & Ohio, and the Pennsylvania companies in the Little Kanawha syndicate properties and in the property and franchises of the Greene County Railroad, the Fairmont & Southern Railroad, and the State Line & Southern Railroad companies on June 30, 1914, was $12,578,417.36. Of this amount $8,771,732.04 consists of cash payments to the Little Kanawha syndicate account of the purchase of the syndicate properties, including interest, while $37,780.78 represents the payment of liabilities of the syndicate assumed by the purchasers, and $3,768,904.54 is the amount of money advanced by the purchasers on their own account.

A copy of the statement of O. E. Kennedy, auditor of Little Kanawha syndicate lines, dated November 27, 1914, showing the entire investment of these carriers named above in the properties of the Little Kanawha syndicate and the Greene County, Fairmont & Southern, and State Line & Southern railroad companies on June 30, 1914, will be found in Appendix No. 13 of this report.

A map submitted by Samuel D. Brady, chief engineer, shows the present location of all the coal, timber, and railroad property and franchises acquired by the present owners from the Little Kanawha syndicate in West Virginia. A copy of this map will be found in Appendix No. 14 of this report.

The records in the office of James T. Blair, secretary of the Little Kanawha syndicate lines, relating to the Little Kanawha syndicate coal and timber properties, jointly owned by the Pittsburgh & Lake Erie, the Baltimore & Ohio, and the Pennsylvania Company, and held by the Union Trust Company of Pittsburgh as trustee, are not complete, except those covering the Kinchiloe properties, which were delivered to the purchasers by Arthur Lee, trustee. Copies of deeds submitted by the Union Trust Company, trustee, do not show the number of acres in all cases, but reference is given therein to other deeds of record in the counties in which the property is located. From a signed statement of Mr. Blair, dated December 12, 1914, and submitted by him at a hearing before the Commission, it appears that the coal properties acquired from the syndicate by the carriers named above are as shown below.

The Kinchiloe coal properties consist of 21,650.56 acres, purchased at a cost of [illegible]45,529.59, of which 2,534.86 acres are located in Braxton county, 17,475.15 acres in Lewis county, and 1,640.55 acres in Harrison county, all in West Virginia.

The Guffey coal properties consist of 57,389.49 acres, purchased at a cost of $2,921,554.83, of which 2,187 acres are in Wetzel county, 4,703.49 acres in Monongalia county, and 50,499 acres in Marion county, all in West Virginia.

The Fulton coal properties consist of 17,008.13 acres situated in Braxton, Gilmer, and Lewis counties, in West Virginia, of which only 6,572.66 acres have been accepted by the Little Kanawha syndicate, at a cost of $348,167.24. Of this 2,953.51 acres are located in Gilmer county and 3,619.15 acres are in Braxton county. Of the remainder of the tract of 17,008.13 acres, 3,353.67 acres have been accepted subject to consideration by Joseph Ramsey, jr., syndicate manager, and 7,081.80 acres have not been accepted by him. Of the 10,435.47 acres not accepted by Mr. Ramsey, 5,400.87 acres are located in Gilmer county, 4,556.26 acres are in Braxton county, and 478.34 in Lewis county.

The Arnold coal properties consist of 2,587 acres, purchased at a cost of $200,271.60, of which 1,889 acres are located in Gilmer county and 698 are in Braxton county, all in West Virginia.

The purchasers of the Little Kanawha syndicate properties reimbursed the Little Kanawha syndicate for expenditures in exploring coal lands in West Virginia and Ohio and for general expenses in connection therewith, amounting to $55,302.94.

From auditor Kennedy's statement dated November 27, 1914, i Appendix No. 13 of this report, it appears that the investment b the purchasers, account of coal properties of the Little Kanawh syndicate as of June 30, 1914, is as shown below:

Investment in coal lands.	Account of syndicate.	Account of purchasers.	Total.
Guffey coal lands	$2,922,341.59	$229,981.31	$3,152,322.9
Kinchiloe coal lands	645,519.59	23,750.07	669,269.6
Arnold coal lands	200,263.85	5,355.01	205,618.8
Fulton coal lands	329,625.15	30,066.39	359,691.5
Coal-land expenses:			
West Virginia coal land	34,521.87	294.77	34,816.6
Exploration of coal lands in Ohio	20,486.50		20,486.5
A. M. Neeper	40,000.00		40,000.0
Total	4,192,758.55	289,447.55	4,482,206.1

A statement submitted by James T. Blair, secretary of the Little Kanawha Railroad Company, supplemented by other information of record in this investigation, shows that total issues of 3,595 shares of common stock and 1,500 shares of preferred stock of the company of the par value of $100 each were held on February 18, 1915, as shown below.

LIST OF COMMON STOCKHOLDERS.

Name.	Address.	Shares.
J. M. Schoonmaker	Pittsburgh, Pa	5
John G. Robinson	do	5
W. F. Brunner	do	5
E. H. Kennedy	do	5
J. J. Turner	do	1
E. B. Taylor	do	1
J. T. Blair	do	1
Union Trust Co. of Pittsburgh, trustee	do	3,424
Wirt county, W. Va	Elizabeth, W. Va	125
C. H. Shattuck estate	Parkersburg, W. Va	20
W. C. De Camp	do	1
S. L. Gould	do	1
W. A. McCosh	do	1
Total		3,595

LIST OF PREFERRED STOCKHOLDERS.

Union Trust Co. of Pittsburgh, trustee	Pittsburgh, Pa	1,334
C. H. Shattuck estate	Parkersburg, W. Va	166
Total		1,500

The ownership of the stock of the Little Kanawha Railroad Company by a combination consisting of the Pittsburgh & Lake Erie, the Pennsylvania Company, and the Baltimore & Ohio has been explained elsewhere in this report (*ante*, p. 561).

The combination of railroads referred to above that now owns the majority of the capital stock of the Little Kanawha Railroad Company also owns about 30,810.22 acres of coal and mining rights and timber located in Gilmer, Braxton, Lewis, and Harrison counties in West Virginia, of which about 21,000 acres are within 20 miles of the final location of the proposed eastern extension of the Little Kanawha Railroad.

Before the Little Kanawha Railroad can be safely and efficiently operated and reach any part of the coal in the eastern part of Gilmer county it will be necessary to construct an extension of the railroad from Johnsons to a connection with the Baltimore & Ohio Railroad at or near Parkersburg, a distance of 4 miles, to reconstruct about 17½ miles of railroad from Johnsons to Sandy Bend, to complete the construction of an extension of about 65 miles from Sandy Bend to Gilmer and there connect with the Coal & Coke Railway, and to acquire a sufficient number of locomotives and cars to properly equip the road for operation. If this were accomplished, the Little Kanawha Railroad would only reach about 1,000 acres of coal property purchased from the Little Kanawha syndicate by the combination of roads referred to above. To reach the so-called Little Kanawha syndicate coal and coal lands in Lewis and Harrison counties, referred to above, it would be necessary for the Little Kanawha to construct a branch line from its proposed main line into the coal lands, a distance of about 20 or 25 miles, and to reach the Little Kanawha syndicate lands in the western part of Braxton and the southeastern part of Gilmer counties would require another branch line of about 20 miles. The Coal & Coke Railway extends through the eastern portion of these lands.

The railroad of the Coal & Coke Railway Company also extends through a considerable portion of the 40,000 or 45,000 acres owned by it. While the attitude of that company is friendly, it is not considered probable that it would furnish much coal traffic to the Little Kanawha if it were extended to Gilmer or Burnsville. The Coal & Coke Railway is a local road, and its principal traffic is coal and coke. A review of the annual reports of the company indicates that the successful operation of its railway largely depends upon the coal and coke traffic controlled by it.

The combination of railroads desires to sell all of its coal property and mining rights in Gilmer, Braxton, Lewis, and Harrison counties, W. Va., its timberland in Braxton county in that state, the 3,447 shares of common and 1,334 shares of preferred stock of the Little Kanawha Railroad Company, and the property and franchises of the Parkersburg Bridge & Terminal and the Burnsville & Eastern railroad companies, owned by it, at a sacrifice, for the reason that it apparently does not consider the coal and other resources of the Little Kanawha Valley to be sufficient at this time to warrant or justify the necessary reconstruction, extension, and equipment of the Little Kanawha required to secure safe and efficient railwa operations, at an estimated cost of more than $5,000,000, to reac coal lands in competition with the Coal & Coke Railway an the Baltimore & Ohio Railroad companies that have lines of railroads within comparatively short distances of all portions of th Gilmer-Braxton-Lewis county coal fields, to say nothing of the wate competition on the Little Kanawha River between Parkersbur and Creston and the small population of the country through whic the railroad is projected.

From the testimony of J. M. Schoonmaker it appears that the combination of railroads is willing to sell its stock in the Little Kanawh and its coal and mining rights in Gilmer, Braxton, Lewis, and Harrison counties, W. Va., for the sum of $1,000,000. The statemen of O. E. Kennedy, auditor of Little Kanawha syndicate lines, date November 27, 1914, included in Appendix No. 13 of this report shows that the investment of the combination in these properties a June 30, 1914, is as follows:

Little Kanawha Railroad Co.:	
Stock	$417,594.87
Advances for construction	429,051.26
Advances for operation	110,624.85
Coal and mining rights:	
Kinchiloe property	669,269.66
Arnold property	205,618.86
Fulton property	359,691.54
Total	2,191,851.04

To this amount it seems that there should be added certain syndicate expenses that would possibly make the total investment in these properties aggregate the sum of $2,250,000.

A copy of a map and estimate submitted by Samuel D. Brady, chief engineer, Little Kanawha syndicate lines, dated December 8, 1914, is included in this report as Appendix No. 15 thereof.

This map shows the location of the Little Kanawha Railroad, its proposed eastern extension, the proposed western extension, o Parkersburg Bridge & Terminal Railroad, the counties through which the roads are projected, the location of the coal and timber lands acquired from the Little Kanawha syndicate by the present owners, and the coal property of the Coal & Coke Railway Company, or the Davis and Elkins interests, in Gilmer, Braxton, and Lewis counties, the approximate number of acres of coal and coal tonnage tributary to the eastern extension of the Little Kanawha Railroad and the Coal & Coke Railway, and the estimated cost of rebuilding the Little Kanawha Railroad and constructing its eastern and western extensions, aggregating $5,050,000.

This estimate does not include the cost of branch lines to reach the coal property jointly owned by the Pittsburgh & Lake Erie, the Baltimore & Ohio, and the Pennsylvania companies in the northwestern part of Braxton, the southeastern part of Gilmer, the northwestern part of Lewis, and the southern part of Harrison counties, which would cost approximately $3,000,000 additional. It would cost about $2,000,000 for equipment, making a total cost of about $10,000,000 to reach the coal lands acquired from the Little Kanawha syndicate by the present owners, according to the testimony of Brady, who contends that it would be impracticable to construct a railroad along the banks of the Little Kanawha River on account of the danger from floods and slips, the sharp curves that would result from following the meanderings of the river, and for the further reason that such a route would be about 29 miles longer than the final location of the Little Kanawha Railroad.

The testimony of Joseph Ramsey, jr., an engineer by profession and a railroad man of large experience, indicates that the Little Kanawha Railroad could be reconstructed, extended, and equipped as a local road for considerably less than the amounts stated in Mr. Brady's estimates. His testimony also indicates that the successful operation of the road if completed would depend upon its traffic relations with the Baltimore & Ohio Railroad Company and other roads in the west, its facilities for moving the coal traffic to Parkersburg for rail and for Ohio River delivery, and its ability to obtain a sufficient volume of the coal tonnage in the Gilmer-Braxton-Lewis county coal fields.

From a review of the facts disclosed by the Commission's investigation, as stated in this section of the report, it does not appear that the Little Kanawha Railroad is now being held by a combination of interstate railroads for the purpose of tying up the development of the Little Kanawha Valley.

There appears below a brief corporate history and other pertinent information with respect to the following railway corporations: Zanesville, Marietta & Parkersburg Railroad Company; Marietta, Columbus & Cleveland Railroad Company; Parkersburg Bridge & Terminal Railroad Company; Burnsville & Eastern Railroad Company; Belington & Northern Railroad Company; Buckhannon & Northern Railroad Company; Greene County Railroad Company; Fairmont & Southern Railroad Company; State Line & Southern Railroad Company; the Monongahela Railroad Company; the Monongahela Railway Company.

The organization, ownership, management, and control of these companies are included in this report in order to make a clear presentation of the facts concerning the ownership, management, and control of the Little Kanawha Railroad Company.

ZANESVILLE, MARIETTA & PARKERSBURG RAILROAD COMPANY.

The Zanesville, Marietta & Parkersburg Railroad Company was organized on the 10th day of December, 1901, by E. D. Fulton, of Uniontown, Pa.; P. B. Crosby, of Marietta, Ohio; James T. Blair, of Parkersburg, W. Va.; and Orville T. Townsend and Rufus C. Burton, of Zanesville, Ohio, and duly incorporated under the laws of Ohio on the 11th day of December, 1901, for the purpose of constructing, acquiring, owning, leasing, operating, and maintaining a railroad as follows: A line of railroad having for its termini a point on the Ohio River at or near Marietta, in Washington county, and a point in or near Zanesville, in Muskingum county, passing through the counties of Muskingum, Morgan, and Washington, all in Ohio.

Capital stock was authorized to the amount of $100,000, divided into shares of $100 each. The subscribers to the capital stock were as follows:

	Shares.
J. T. Blair, E. D. Fulton, trustees	987
J. T. Blair	5
R. C. Burton	1
O. T. Townsend	1
P. B. Crosby	1
E. D. Fulton	5
Total	1,000

The first meeting of the company was held at Zanesville, Ohio, at which J. T. Blair was elected president and E. D. Fulton secretary. O. T. Townsend, R. C. Burton, P. B. Crosby, and J. T. Blair were appointed an executive committee. The general office was located at Zanesville, Ohio, and R. P. Van Deusen was appointed engineer in charge of the work of construction.

On January 23, 1902, the terminus of the road was changed from Marietta to Belpre, Washington county, Ohio, a point on the Ohio River near Parkersburg, W. Va. The line surveyed by the engineer on the east side of the Muskingum River between Roxbury and Parkersburg was adopted. The line surveyed on the west side of the Muskingum River from a connection with the Wheeling & Lake Erie Railroad down and to a crossing over the river about 1½ miles below Zanesville was adopted.

At a stockholders' meeting held December 19, 1902, the southern terminus of the line was changed from Belpre to the junction of the Little Hocking with the Ohio River, a distance of about 6 miles below Parkersburg on the west side of the Ohio River. The line was changed to leave the Muskingum River at or near Zanesville, passing through Muskingum county, via South Zanesville and Roseville, through Crooksville, Sayre, Sharpsburg, and Cutler to Little Hocking.

On March 27, 1903, the president was authorized to enter into a contract with the Little Kanawha syndicate or other responsible contractors for the construction of the road from a point at or near Zanesville to the terminus of the Sharpsburg branch of the Marietta, Columbus & Cleveland Railroad on the best possible terms satisfactory to the president and in terms and conditions similar to those contained in the contract between the Little Kanawha Railroad Company and the Little Kanawha syndicate. John J. Adams, of Zanesville, Ohio, was appointed agent and attorney for the company.

On April 2, 1903, a contract was made by the Little Kanawha syndicate with McArthur Brothers Company for the masonry, trestling, piling, timber bridges, grading, track laying, and ballasting, and all other work required for the roadbed, exclusive of steel or iron bridges.

The work was carried on until December, 1903, when orders were received from Joseph Ramsey, jr., manager of the syndicate, to suspend all work. Since that time no construction work has been done on the line.

On September 11, 1903, the line was adopted as located from South Zanesville through the township of Springfield to the corporation line of Zanesville, thence to a connection with the tracks of the Wheeling & Lake Erie Railroad.

On November 4, 1903, a branch line was adopted from a point near Darlington to the mine of the Northern Coal Company. Record was made of a perpetual franchise granted by the towns of Roseville and Crooksville, Ohio, for the construction and operation of a railroad through these towns.

The expenditure on account of the construction of the Zanesville, Marietta & Parkersburg Railroad to July, 1914, was $871,545.03, after deducting $6,349.65 for materials sold. The percentages of construction work done were as follows:

	Per cent.
Grading	20.5
Tunnels	6.4
Masonry	10.4
Bridges	3.0
Trestles	4.1

There were three tunnels to be constructed between Zanesville and Sayre, as follows:

	Feet.
No. 1	1,800
No. 2	600
No. 3:	2,215
Total	4,615

There were a number of proposed viaducts between Cutler and the Ohio River, varying from 250 to 1,000 feet in length. The work on this part of the line was very expensive.

MARIETTA, COLUMBUS & CLEVELAND RAILROAD COMPANY.

The Marietta, Columbus & Cleveland Railroad Company was incorporated on the 31st day of October, 1900, under the general laws of Ohio, in connection with the reorganization of the Toledo & Ohio Central Extension Railroad Company.

On August 30, 1902, an agreement was entered into between Henry H. Isham, agent for the stockholders and bondholders of the Marietta, Columbus & Cleveland Railroad Company, and James T. Blair, agent for the Little Kanawha syndicate, for the purchase of the property and franchises of the railroad company by the syndicate. This agreement was amended by a supplementary agreement dated October 15, 1902.

The property was purchased principally for the purpose of using about 13 miles of the railroad as a part of a through line from Zanesville to the Ohio River.

Inasmuch as the Zanesville, Marietta & Parkersburg Railroad was not completed and the Marietta, Columbus & Cleveland Railroad was not a paying proposition, the Pittsburgh & Lake Erie Railroad, the Baltimore & Ohio Railroad, and the Pennsylvania companies, which companies had acquired the property and franchises of the Marietta, Columbus & Cleveland Railroad Company, assigned and transferred the capital stock of that company to a committee of bondholders to be used for their benefit, as was evidenced by an agreement dated December 29, 1908.

The road was operated at a great disadvantage on account of inadequate equipment, and there were insufficient earnings to keep the road in safe condition for economical operation.

PARKERSBURG BRIDGE & TERMINAL RAILROAD COMPANY.

The Parkersburg Bridge & Terminal Railroad Company was organized on July 31, 1902, by J. T. Blair, of Greeneville, Pa., and V. B. Archer, H. G. Lampman, jr., B. R. Petrikin, and H. J. Cook, all of Parkersburg, W. Va., and duly incorporated under the laws of West Virginia August 1, 1902, for the purpose of constructing and operating railroads in West Virginia and Ohio.

The railroad which this corporation proposed to build was to commence at a point at or near the present terminal of the tracks of the Little Kanawha Railroad Company, on the south side of the Little Kanawha River in Wood county, W. Va., extending thence by the most practicable route to the Little Kanawha River in that county thence on a bridge, or bridge and viaducts, across the Little Kanawha River to a point at, in, or near the city of Parkersburg, in Wood county, thence by the most practicable route through or around the city of Parkersburg to a point at or near the Ohio River at or near Briscoe, in Wood county, thence crossing the Ohio River on a bridge, or bridge and viaducts, to the Ohio side, thence west in Washington county, Ohio, a distance of about 1 mile. Also commencing at the beginning point above described at or near the present terminal of the tracks of the Little Kanawha Railroad Company, thence by the most practicable route to the Ohio River at a point on the south side of the Little Kanawha River from the city of Parkersburg, thence crossing the Ohio River on a bridge, or on a bridge and viaducts, to the Ohio side, at or near the town of Belpre, in Washington county, Ohio, thence by the most practicable route in Washington county to the permanent survey of the Zanesville, Marietta & Parkersburg Railroad Company.

The company was also given the right to build and operate bridges, wharves, landings, tipples, and warehouses, and such other rights as may be necessary to carry into effect the purposes of the corporation.

The capital stock authorized was $100,000, divided into shares of $100 each. Each corporator subscribed for one share. The subscribers to the capital stock, their addresses, and the number of shares subscribed by each of them were as follows:

Subscriber.	Address.	Shares.
J. T. Blair, trustee	Greenville, Pa	994
E. D. Fulton	Uniontown, Pa	1
H. G. Lampman, jr	Parkersburg, W. Va	1
D. I. Roberts	do	1
S. D. Brady	do	1
J. T. Blair	Greenville, Pa	2
Total		1,000

On August 29, 1902, Samuel D. Brady, chief engineer, was directed to make the necessary surveys and maps for the location of the railroad, sidetracks, turnouts, and other necessary tracks, buildings, and warehouses, as well as for the location of the bridges across the Ohio and Little Kanawha Rivers, and to report all surveys to the directors for further action.

On December 3, 1902, the stockholders adopted a change in termini, location, and general route of the Parkersburg Bridge & Terminal Railroad Company, which termini, location, and general route were to be as follows: Beginning at Johnsons station, in Wood county, W. Va., on the present location of the Little Kanawha Railroad, thence by the most practicable route through South Parkersburg, Blennerhasset station, and Washington station, to the north side of the Ohio River, at or near Little Hocking post office, in Washington county, Ohio. A certificate of this change in termini, location, and general route was filed in the office of the secretary of state of West Virginia, on December 8, 1902.

The corporation also filed maps and plats of its lines located in Wood county, W. Va., in the office of the secretary of state of West Virginia on December 6 and 13, 1902, and January 7 and 22, 1903.

The amount expended by the Little Kanawha syndicate account of real estate, engineering, and other expenses in connection with the Parkersburg Bridge & Terminal Railroad Company was $94,483.92. The Pittsburgh & Lake Erie Railroad, the Baltimore & Ohio Railroad, and the Pennsylvania companies expended $4,903.24, account of the property and franchises of this company, since they were acquired by these carriers from the syndicate.

The dimensions of the projected Ohio River bridge were as follows:

	Feet.
Channel span	700
West Virginia anchor arm	297
Ohio anchor arm	297
West Virginia viaduct	602
Ohio approach	170
Total	2,066

The following is a brief description of the real estate and rights of way acquired by the Parkersburg Bridge & Terminal Railroad Company:

Nineteen houses and lots in South Parkersburg, from which a monthly rent of about $117 is derived. With one or two exceptions the houses are very old and dilapidated structures and badly out of repair, and are largely occupied by people in poor circumstances.

One tract of 259.25 acres of land, situated along the Ohio River about 6 miles below Parkersburg, from which an annual rent of about $435 is derived. This land was purchased for yard and shop purposes.

Rights of way aggregating 4.22 miles were acquired. The distance through the above-described properties is included in the 4.22 miles of rights of way.

Deeds for all the above properties have been obtained and recorded. Rights of way for 6.38 miles have not been acquired.

BURNSVILLE & EASTERN RAILROAD COMPANY.

The Burnsville & Eastern Railroad Company was organized on the 24th day of July, 1902, by J. T. Blair, of Greenville, Pa., and V. B. Archer, S. D. Brady, H. G. Lampman, jr., and H. J. Cook, of Parkersburg, W. Va., and was duly incorporated on July 25, 1902, under the laws of West Virginia, for the purpose of operating a railroad in West Virginia.

The railroad which this company proposed to build was to commence at or near Burnsville, in Braxton county, and extend from Burnsville by the most practicable route through the counties of Braxton, Lewis, Upshur, and Barbour, to a point at or near Belington.

The authorized capital stock was $100,000, divided into shares of $100 each. Each of the above-named corporators subscribed for one share. The subscribers to the capital stock of the company and the number of shares later subscribed by them were as follows:

	Shares.		Shares.
J. T. Blair, trustee	994	D. I. Roberts	1
V. B. Archer	1	E. D. Fulton	1
J. T. Blair	2		
H. J. Cook	1	Total	1,000

Samuel D. Brady, chief engineer, was directed to locate the line of railroad of the company from a point at or near Burnsville, in Braxton county, by the most practicable route through the counties of Braxton, Lewis, Upshur, and Barbour to a point at or near Belington, in Barbour county.

This company filed maps and profiles of the locations of its railroad from Burnsville to Belington in the office of the secretary of state of West Virginia on August 5 and September 29, 1902. These maps bear the approval of J. T. Blair, president, and Samuel D. Brady, chief engineer.

On the 8th day of December, 1902, the company filed in the office of the secretary of state of West Virginia a certificate of change in termini, location, and general route of the Burnsville & Eastern Railroad in accordance with a new line surveyed by Samuel D. Brady, chief engineer. The location and general route of the new line was as follows:

Beginning at Burnsville, Braxton county, at the terminus of the line of the Little Kanawha Railroad, thence on the route surveyed by Samuel D. Brady, chief engineer, via Oil Creek through Braxton county to Confluence; thence through Lewis county via Clover fork of Oil Creek and the divide on the west fork of the Monongahela River at or near Walkersville, and thence through the divide to the waters of Skin Creek and on to Pringle fork, thence through Upshur county via Stone Coal, Brush Fork, Buckhannon, and Pecks Run to station 2254, as designated on the plat, and on the Upshur-Barbour county line, thence through Barbour county via Volga to the mouth of Big Run, thence down the east side of Buckhannon River to its mouth, and thence up the east side of the Tygarts Valley River to Belington, in Barbour county, all in West Virginia.

On December 6, 1902, and January 19, 1903, the corporation, in accordance with the certificate of change in termini, location, and general route, as described above, filed maps and plats of the proposed railroad in the office of the secretary of state of West Virginia.

On July 16, 1903, the company filed in the office of the secretary of state of West Virginia a map and profile of a line extending from Belington, in Barbour county, to Haddicks Summit, near Montrose, in Randolph county.

The amount expended by the Little Kanawha syndicate account of the Burnsville & Eastern Railroad Company up to the time of the sale of the property and franchises to the Pittsburgh & Lake Erie Railroad Company was $38,806.25. The total expenditures to June 30, 1914, amounted to $49,120.27.

The percentages of construction work done on the proposed railroad were as follows:

	Per cent.
Grading	0.2 of 1
Tunnels	0.03 of 1
Masonry	None.
Bridges	None.
Trestles	None.

The length of the tunnels on the proposed line were as follows:

	Feet.		Feet.
No. 1	250	No. 7	350
No. 2	2,700	No. 8	250
No. 3	200	No. 9	350
No. 4	350	No. 10	300
No. 5	650		
No. 6	750	Total	6,150

BELINGTON & NORTHERN RAILROAD COMPANY.

The Belington & Northern Railroad Company was organized on the 28th day of December, 1899, by N. T. Arnold and J. C. Williams, of Ridgeway, Pa.; Floyd Teter, of Belington, W. Va.; and Charles F. Teter and Frederick O. Blue, of Philippi, W. Va., and was duly incorporated under the laws of West Virginia on January 2, 1900, for the purpose of operating a railroad in West Virginia.

The railroad which this corporation proposed to build was to commence at Charleston, in Kanawha county, and to extend from that point by the most practicable route to Morgantown, in Monongalia county, all in West Virginia.

The capital stock authorized was $10,000, divided into shares of $100 each. N. T. Arnold subscribed for 96 shares and each of the other corporators 1 share. On May 24, 1900, the capital stock was increased from $10,000 to $100,000. On October 30, 1903, the capital stock was increased to $150,000.

Maps and profiles were filed in the office of the secretary of state of West Virginia at various dates from April 7, 1900, to September 10, 1902.

During December, 1903, the Little Kanawha syndicate acquired all the property, rights, and franchises of the Belington & Northern Railroad Company for the sum of $225,000 in fully paid nonassessable participating certificates of the syndicate. The sale of the property was ratified at a meeting of the stockholders of the Buckhannon & Northern Railroad Company held December 29, 1903, at which the resolutions shown below were adopted by a vote of 969 shares out of a total of 1,500 shares. The remaining 531 shares appear to have been pledged to secure a loan of $50,000.

Resolved, That the property, rights, and franchises of the Belington & Northern Railroad Company be conveyed to the Little Kanawha syndicate in accordance with the proposition made to Mr. Joseph Ramsey, jr., manager of the Little Kanawha syndicate, on December 16, 1903, that is to say for the sum of $225,000 in full-paid nonassessable participating certificates of the Little Kanawha syndicate issued to the holders of the stock of the corporation or to such person or persons, corporation or corporations, as the stockholders or any number of them may appoint to act as trustee for them.

Resolved, That the indebtedness of the corporation represented by bills payable amounting to $50,000 shall be paid and discharged by the stockholders of the corporation in proportion to their holdings of capital stock, and that the treasurer of the corporation shall hold the syndicate certificates due the respective stockholders until the treasurer has received from the respective stockholders the pro rata proportion of the $50,000 represented by bills payable, but each shareholder shall be entitled to receive the certificates of the Little Kanawha syndicate for the stock held by him as soon as his proportionate share required to discharge all bills payable is paid to the treasurer, regardless of the delinquency of other stockholders.

Resolved, That the directors of the corporation be, and hereby are, authorized and empowered to carry into force and effect the foregoing resolution.

The stockholders on December 29, 1903, and the number of shares held by each of them are as follows:

	Shares.		Shares.
J. H. Beadle	30	W. A. Wilbur	142
D. B. Abbott	10	E. P. Wilbur	143
N. T. Arnold	262	R. H. Sayre	143
Paul Arnold	1	Estate of R. A. Abbott	42
M. P. Whiting	1	E. P. Wilbur Trust Co	20
Austin Blakeslee	50		
Estate of H. H. Osterhout	125	Total	969

During 1901 and 1902 the Belington & Northern Railroad Company constructed 4.06 miles of main track between Belington and Wilmouths Ford, in West Virginia, together with 1.20 miles of sidings. The main line connects with the Western Maryland Railway in Belington and extends in a northwesterly direction down the Tygarts Valley River to Wilmouths Ford. The maximum curvature in main line is 14 degrees, and the maximum grade 0.45 of 1 per cen The main line is laid with 80-pound and the sidings with 70-poun rail. The property is used as a switching railroad and the service performed by the Western Maryland Railway Company at the rate of $ per car. The rates in effect pay a small margin over the switchin charge.

In addition to its rights of way, the company owns 6.7 acres of land located in the town of Belington. This land was purchased by N. T Arnold, the former president of the company, for shop and yar purposes.

In addition to rights of way covered by its tracks, the compan owns 3½ miles of rights of way 66 feet wide, extending down th Tygarts Valley River from the northern end of the main track.

The Belington & Northern Railroad Company does not own o lease any equipment.

To June 30, 1914, the sum of $17,193.35 was advanced by th present owners for the operations of the Belington & Northern Railroad, of which $518.79 was expended by the Little Kanawha syndicate and $16,674.56 by the present owners of the property of the company. It is understood that the Baltimore & Ohio Railroad Company, one of the joint owners, maintains the property at the expense of the joint owners.

BUCKHANNON & NORTHERN RAILROAD COMPANY.

The Buckhannon & Northern Railroad Company was organized by John F. Williams and James E. Ingram, of Baltimore, Md.; J. M. Brownfield, Charles E. Conaway, and Edwin F. Hartley, of Fairmont, W. Va.; A. Spates Brady, of Clarksburg, W. Va.; and B. F. Overholt, of Scottsdale, Pa., on January 10, 1902, and duly incorporated under the laws of West Virginia on the 7th day of February, 1902, for the purpose of constructing and operating a railroad in West Virginia.

The railroad as originally proposed was to commence at or near Fairmont, in Marion county, and run thence by the most practicable route through the counties of Marion, Taylor, Barbour, and Upshur to a point at or near Buckhannon, in Upshur county, all in West Virginia.

The capital stock authorized was $50,000, divided into shares of $100 each. Each of the corporators subscribed for five shares, of which $350 was paid at the time the corporation was organized.

The company filed maps and profiles in the office of the secretary of state of West Virginia on various dates from February 6, 1902, to October 30, 1913.

A recapitulation of the main line and branches of the Buckhannon & Northern Railroad Company adopted and filed in the office of the secretary of state of West Virginia, as shown by the report of J. T. Blair, secretary and treasurer of the company, dated December 12, 1914, is as follows:

	Miles.
Main line, Fairmont to Buckhannon	70.00
Rivesville branch	6.74
St. George branch	18.30
Montrose branch	13.40
Extension Rivesville branch	20.09
Blackville branch	15.90
Belington branch	11.36
State line extension	9.55
Total distance	165.34

The Little Kanawha syndicate, through Joseph Ramsey, jr., syndicate manager, and James T. Blair, agent, acquired all of the stock of the Buckhannon & Northern Railroad Company, at a total cost of $150,020, as shown by the statement of O. E. Kennedy, auditor Little Kanawha syndicate lines, dated November 27, 1914, a copy of which will be found in Appendix No. 13 of this report. The stock was acquired from Charles E. Conaway and his associates during March, 1903.

On May 12, 1903, Rinehart & Dennis Company entered into an agreement with the Buckhannon & Northern Railroad Company for all the grading, masonry, tunnel, pile and trestle timber bridges, and all other work required for the roadbed of the Buckhannon & Northern Railroad, exclusive of all steel or iron viaduct or bridge work, from the Pennsylvania-West Virginia state line at or near Blacksville to Moatsville, on the Tygarts Valley River, in West Virginia, a distance of 57 miles.

The agreement was afterwards changed by order of Joseph Ramsey, jr., manager of Little Kanawha syndicate, and work suspended between the Monongahela River and the Pennsylvania-West Virginia state line, in lieu of which the Rinehart & Dennis Company was given the work on that part of the line between Moatsville and Belington, W. Va., a distance of 22.5 miles. The work was carried on vigorously until December, 1903, when orders were received from the syndicate managers to suspend all work. Since that time no construction work has been done by the syndicate on the Buckhannon & Northern Railroad. The percentage of work done by the syndicate is as follows:

	Per cent.
Grading	21.4
Tunnels	6.1
Masonry	5.9
Bridges	2.0
Trestles	1.0

Rights of way for 79.50 miles are necessary to construct the Buckhannon & Northern Railroad between the Pennsylvania-West Virginia state line at Rudolphs Run to a connection with the Belington & Northern Railroad at Wilmouths Ford, in West Virginia. Of these rights of way, 46.39 miles were acquired by deed, 9.51 miles were optioned, but deeds were not accepted because of cloudy titles and summary proceedings, and 23.60 miles were not optioned or acquired. All the rights of way acquired by deed have been taken into the books of the company and deeds accepted and recorded.

Included in the rights of way optioned are 6,492 feet through the property of C. E. Conaway, situated in the Tygarts Valley, in Taylor county. The consideration was $1,050, which has been paid through the circuit court of Taylor county in condemnation proceedings instituted against Margaret Forman and others, which amount the court paid over to Mr. Conaway. A copy of the proposal of C. E. Conaway with respect to rights of way and land for railway purposes, which was accepted by the company, reads as follows:

To Buckhannon & Northern Railroad Company:

I will make the following proposal to you, subject to your acceptance within 30 days from date, and to stand good after acceptance for the term of two years:

I will give the free right of way through the Laura Sayres farm, Henry D. Forman farm, and Oscar Singleton farm and will waive any remaining interest which I may have in the Maggie Forman farm and will give 30 acres of land, to be selected by the railroad company, on either of the above-named tracts if the Buckhannon & Northern Railroad Company will make a division terminal on said land and build and maintain roundhouse, railroad shops, and other buildings usually located at division terminal. I will also give any ground required for water tank or reservoir, said company to build and maintain a lawful fence on either side of the line of right of way if required to do so by me, said right of way above named to be 50 feet on either side of the railroad company's located center line.

If at the expiration of said two years said proposal is not fulfilled or said shops are not built on said grounds, the company is to pay me $2,500 and is to also pay interest on the $2,500 at 6 per cent to me after notice of acceptance for the term of two years, said interest to be paid annually.

If at any time in the future said shops should be removed from said grounds, the land on which they are located is to revert back to me, said railroad company is to pay $2,500 for right of way.

This 28th day of November, 1903.

Respectfully submitted.

(Signed) C. E. CONAWAY.

The 9.51 miles mentioned as not accepted consist of 39 tracts. Fourteen of these pieces, amounting to $1,781.03, have not been vouchered on account of defective titles and summary proceedings. For the remaining 25 pieces vouchers amounting to $6,342.80 have been prepared and taken into account on the books of the company and $3,602.80 appropriated toward payment, but on account of defective titles and summary proceedings deeds have not been obtained. The balance required to purchase all accepted rights of way consists of the following items:

Fourteen tracts not vouchered		$1,781.03
Twenty-five tracts vouchered:		
Cost	$6,342.80	
Appropriated	3,602.80	
		2,740.00
Amount due C. E. Conaway		1,450.00
Amount due the city of Grafton		1,000.00
Total		6,971.03

On March 30, 1903, the ordinance giving the right of way to Buckhannon & Northern Railroad Company through the city of Fairmont, W. Va., was accepted by the board of directors. On August 31, 1903, the ordinance giving the right of way through the city of Grafton, W. Va., was also accepted.

Prior to the purchase of the stock of the Buckhannon & Northern Railroad Company by the Little Kanawha syndicate, an agreement was made with the Overholt Coal & Coke Company, dated November 8, 1902, with respect to the construction of sidings for the coal and coke company.

It is claimed that the above-described contract is not binding upon the Buckhannon & Northern Railroad Company, for the reason that it was not authorized by the railroad company, and that B. F. Overholt and Charles E. Conaway were owners and officers of both companies at the time the contract was executed.

On the 1st day of September, 1905, the Pittsburgh & Lake Erie Railroad Company acquired the property and franchises of the Buckhannon & Northern Railroad Company from the Little Kanawha syndicate, and on February 26, 1906, sold to the Baltimore & Ohio Railroad Company one-fourth of its interest and to the Pennsylvania Company one-fourth of its interest in such property and franchises, under an agreement of that date, a copy of which will be found in Appendix No. 10 of this report.

Since February 26, 1906, the combination of railroads consisting of the Pittsburgh & Lake Erie Railroad, the Baltimore & Ohio Railroad, and the Pennsylvania companies has constructed the Buckhannon & Northern Railroad from a connection with the Monongahela Railroad at the West Virginia-Pennsylvania state line, near Point Marion, Pa., along the banks of the Monongahela River to Fairmont, with certain branch lines, which will soon be opened for commercial operations.

On November 24, 1914, an agreement was executed by the proper officers and directors of the Buckhannon & Northern Railroad Company and the Monongahela Railroad Company for the merger of these two companies under the name of the Monongahela Railway Company.

For construction of the Buckhannon & Northern Railroad $3,763,731.79 was expended to June 30, 1914, of which $2,926,954.14 was advanced by the present owners of the property and franchises of the company, and the sum of $836,777.65 was expended account of the Little Kanawha syndicate. It is understood that much of the construction work performed by the syndicate can be utilized in extending the Buckhannon & Northern Railroad from Fairmont to Wilmouths Ford, in West Virginia.

GREENE COUNTY RAILROAD COMPANY.

The Greene County Railroad Company was organized on the 10th day of May, 1902, by subscribers to articles of association as shown below:

Name.	Residence.	Shares.
James T. Blair	Greenville, Pa.	999
E. D. Fulton	Uniontown, Pa.	999
F. P. Patterson	Pittsburgh, Pa.	1
W. M. Lindsay	do.	1
John D. Evans	Allegheny, Pa.	1
Arthur L. Over	Sewickley, Pa.	1
E. E. Jones	Pittsburgh, Pa.	1
T. B. Foley	do.	1
A. M. Neeper	do.	2,996
Total		5,000

The names and places of residence of the president and a board of six directors chosen to manage the affairs of the corporation for the first year were: President, James T. Blair, Greenville, Pa.; directors, E. D. Fulton, Uniontown, Pa.; W. M. Lindsay, E. E. Jones, F. P. Patterson, Pittsburgh, Pa.; John D. Evans, Allegheny, Pa.; A. L. Over, Sewickley, Pa.

The company was duly incorporated under the laws of Pennsylvania on the 14th day of May, 1902, for the purpose of constructing, maintaining, and operating a railroad extending from the borough of Washington, in Washington county, to the borough of Waynesburg, in Greene county, all in Pennsylvania, a distance of about 25 miles. The articles of association provided that the capital stock should be $250,000, or at least $10,000 for every mile constructed or proposed to be constructed, consisting of 5,000 shares of the par value of $50 each.

On the 15th day of November, 1909, the Greene County Railroad Company presented a duly certified copy of its articles of association and filed in the office of the secretary of state of West Virginia a writing executed under its corporate seal, accepting the provisions of the laws of West Virginia. The application to do business in West Virginia reads as follows:

To the state of West Virginia:

The Greene County Railroad Company, a corporation organized and existing under the laws of the state of Pennsylvania, with a charter and corporate authority from the state of Pennsylvania to construct and operate a railroad from the city of Waynesburg, in said state of Pennsylvania; thence in an easterly direction down Ten Mile Creek to the Monongahela River; thence up the Monongahela River in a southerly direction to the mouth of Dunkards Creek; thence into the state of West Virginia, and up Dunkards Creek in a westerly direction to Blacksville, in the state of West Virginia.

And said corporation desiring to do business in the state of West Virginia, and to construct and operate its railroad line in the state of West Virginia from the mouth of Dunkards Creek in the county of Monongalia, thence up Dunkards Creek to Blacksville in said county and state, and to locate and adopt such other lines of railroad as under its charter and the laws of the state of West Virginia it is authorized to do, hereby accepts the provisions of section 30 of chapter 54 of the code of West Virginia, and hereby agrees to be governed thereby.

Witness the corporate name and seal of the Greene County Railroad Company, attested by the signatures of its president and secretary, under authority duly given, this the 4th day of November, A. D. 1909.

GREENE COUNTY RAILROAD COMPANY,
By J. T. BLAIR, *President.*

Attest:

[L. S.] A. H. BLAIR, *Secretary.*

On the 15th day of December, 1909, the Greene County Railroad Company filed in the office of the secretary of state of West Virginia the map and profile of the proposed location of its railroad to extend from a point at or near the mouth of Dunkards Creek, in Greene county, Pa., thence up Dunkards Creek to Blacksville near Penfress, in Monongalia county, W. Va. The name of the engineer making the survey does not appear on the map and profile, but it is certified by A. H. Blair, secretary of the company.

This company made and adopted a number of surveys of proposed lines of railroads, some of which are mentioned below.

On June 5, 1902, a branch line from Washington to a connection with the Wabash Pittsburgh Terminal Railway, at Bishop, all in Pennsylvania, was adopted by the company. On July 5, 1902, a branch line or extension from Waynesburg to Uniontown, all in Pennsylvania, was adopted. On December 24, 1902, a revised line from Waynesburg to Uniontown, all in Pennsylvania, was adopted. On March 28, 1903, a branch line from Waynesburg, Pa., to Blacksville, on the Pennsylvania-West Virginia state line, was adopted.

The Buckhannon & Northern Railroad was purchased by the Little Kanawha syndicate and the Greene County Railroad Company organized for the purpose of constructing a line of railroads from Bishop south to the coal fields along the waters of the Monongahela and Tygarts Valley rivers in West Virginia as an outlet for the

Wabash Pittsburgh Terminal Railway Company. All of these railroads were controlled by George J. Gould and his associates.

The Pittsburgh & Lake Erie Railroad Company acquired the property and franchises of the Greene County Railroad Company from Joseph Ramsey, jr., James T. Blair, James W. Patterson, Elwood D. Fulton, and A. M. Neeper, under an agreement dated September 25, 1905, for the sum of $250,000. A copy of this agreement will be found in Appendix No. 9 of this report.

On November 1, 1905, Joseph Ramsey, jr., James W. Patterson, A. M. Neeper, Elwood D. Fulton, and James T. Blair executed a bond to the Pittsburgh & Lake Erie Railroad Company and the Greene County Railroad Company for the sum of $100,000, indemnifying them from all liability, loss, or expense caused by claims against the Greene County Railroad Company up to the time of purchase by the Pittsburgh & Lake Erie Railroad Company on account of salaries, services, wages, construction, and taxes.

On February 26, 1906, the Pittsburgh & Lake Erie Railroad Company sold to the Baltimore & Ohio Railroad Company one-fourth of its interest and to the Pennsylvania Company one-fourth of its interest in the property and franchises of the Greene County Railroad Company.

It appears that there was no construction work done on the Greene County Railroad.

FAIRMONT & SOUTHERN RAILROAD COMPANY.

The Fairmont & Southern Railroad Company was organized on June 15, 1907, by John F. Williams, of Baltimore, Md.; Benjamin F. Overholt, of Scottsdale, Pa.; Ralph Overholt, of Pittsburgh, Pa.; Charles F. Teter and Samuel A. Moore, of Philippi, W. Va.; and Charles E. Conaway and Waitman H. Conaway, of Fairmont, W. Va., and duly incorporated under the laws of West Virginia on August 31, 1907, for the purpose of building and operating a railroad in West Virginia.

The railroad which the corporation proposed to build was to commence at or near the town of Belington, in Barbour county, W. Va., and run thence by the most practicable route, along the Tygarts Valley and Monongahela rivers, via Grafton and Fairmont, to a point at or near the city of Pittsburgh, in Pennsylvania, and was to be operated by steam, electric, or other power.

The capital stock authorized was $25,000, divided into shares of $100 each. Each of the corporators subscribed for one share.

No notice of appointment of any person as attorney in fact was filed by the company in the office of the secretary of state of West Virginia.

On the 4th day of September, 1907, the corporation filed a map and profile of the proposed location of the Fairmont & Southern Railroad from a point about 4 miles north of Belington, in Barbour county, down the Tygarts Valley and Monongahela rivers, to a point near Rivesville, in Marion county, all in West Virginia, which map and profile was dated August 1, 1907, and signed by C. F. Teter, vice president, and N. D. Linger, chief engineer.

On August 31, 1907, the stockholders elected as directors John F. Williams, B. F. Overholt, Ralph Overholt, Charles F. Teter, Charles E. Conaway, Waitman H. Conaway, and S. A. Moore.

At a directors' meeting held August 31, 1907, officers were elected as follows: Charles E. Conaway, president; Charles F. Teter, vice president; S. A. Moore, treasurer; W. H. Conaway, secretary; John F. Williams, general attorney; N. D. Linger, chief engineer.

At a meeting held September 17, 1907, the board of directors of the company took under consideration the advisability of obtaining rights of way for the construction of its road, of contesting the rights of way of the Buckhannon & Northern Railroad Company for the construction of a railroad on its survey along the Tygarts Valley and Monongahela rivers in Barbour, Taylor, and Marion counties, in West Virginia, and of bringing about the cancellation of the charter and certificate of incorporation of the Buckhannon & Northern Railroad Company, because of ownership by the Pennsylvania and the Baltimore & Ohio Railroad companies of a one-half interest in the property and franchises of the Buckhannon & Northern Railroad which would parallel the present line of railroad of the Baltimore & Ohio Railroad Company, in West Virginia, contrary to the laws thereof. A committee was appointed to employ counsel to institute suits, take steps to secure rights of way, and conduct any other necessary legal proceedings in connection therewith. V. B. Archer was employed as counsel on September 23, 1907.

At a directors' meeting held March 27, 1908, John F. Williams was elected president to fill the vacancy caused by the death of Charles E. Conaway. At this meeting the committee to employ counsel reported that V. B. Archer, attorney, was paid $500 as counsel to investigate and to prepare and render an opinion relative to the legal status of the claim of the Fairmont & Southern Railroad Company against the Buckhannon & Northern Railroad Company and its affiliated companies.

The Pittsburgh & Lake Erie Railroad, the Baltimore & Ohio Railroad, and the Pennsylvania companies having acquired the interests of John F. Williams and others in the property and franchises of the Fairmont & Southern Railroad Company for the sum of $3,730, their resignations as directors and officers were accepted at a meeting of the board of directors held January 23, 1911.

According to a statement of J. T. Blair, dated December 12, 1914, the line of the Fairmont & Southern Railroad Company was located directly on the rights of way of the Buckhannon & Northern Railroad Company, with the evident intent of either inheriting the property and work done on the same by the latter company should its charter rights lapse or make trouble for the owners of the property. No money beyond that necessary for organization of the Fairmont & Southern Railroad Company was expended by John F. Williams and his associates.

On January 23, 1911, J. T. Blair was elected president and director to fill the vacancy caused by the death of John F. Williams. Other directors elected on this date to fill vacancies caused by resignations were W. F. Brunner, O. E. Kennedy, J. M. Schoonmaker, Joseph Wood, George M. Shriver, and S. D. Brady.

At a meeting of the board of directors held on March 10, 1911, the following officers were elected: J. M. Schoonmaker, president; Joseph Wood, vice president; J. T. Blair, secretary and treasurer; O. E. Kennedy, auditor; S. D. Brady, chief engineer.

During March, 1914, the Baltimore & Ohio Railroad Company sold its one-fourth interest in the property and franchises of the Fairmont & Southern Railroad Company to the Pennsylvania Company, in order to comply with the laws of West Virginia with respect to the ownership of competing railroads.

THE STATE LINE & SOUTHERN RAILROAD COMPANY.

The State Line & Southern Railroad Company was organized on the 28th day of May, 1910, by S. D. Brady, H. M. Schrader, and R. E. Kerr, of Parkersburg, W. Va.; B. M. Laughead, of Morgantown, W. Va.; and Charles Morris, of Fairmont, W. Va., and duly incorporated on the 1st day of June, 1910, under the laws of West Virginia, for the purpose of constructing and operating a railroad in West Virginia.

The railroad which this corporation proposed to build was to commence at or near the dividing line between the states of West Virginia and Pennsylvania, about 800 feet west from the west bank of the Monongahela River in the county of Monongalia, and run thence by the most practicable route to a point at or near Rivesville, in the county of Marion, all in West Virginia.

The authorized capital stock of the corporation was $10,000, divided into shares of $100 each. Each of the corporators subscribed for one share.

On July 12, 1910, the company filed in the office of the secretary of state of West Virginia a notice of the appointment of W. S. Meredith, of Fairmont, W. Va., as attorney in fact.

On July 12, 1910, the company filed in the office of the secretary of state of West Virginia a map and profile of the location of the State Line & Southern Railroad from the Pennsylvania-West Virginia state line to Rivesville, via the Monongahela River, in Monongalia and Marion counties, all in West Virginia, dated July 9, 1910, and bearing the signature of Samuel D. Brady as vice president and as chief engineer.

The survey of the location of this railroad appears to be the same as that of the Buckhannon & Northern Railroad Company filed in the office of the secretary of state of West Virginia, November 28, 1910, and bearing the signatures of J. M. Schoonmaker, president, and Samuel D. Brady, chief engineer.

From a statement of J. T. Blair, dated December 12, 1914, it appears that the charter for the State Line & Southern Railroad Company was obtained to protect the building of a branch line of the Buckhannon & Northern Railroad Company in the event of a lapse of charter rights of that company under existing laws.

At a meeting of the board of directors held June 28, 1910, the following officers were elected: Joseph Wood, president; S. D. Brady, vice president; Charles Morris, secretary and treasurer; W. S. Meredith, attorney.

During March, 1914, the Baltimore & Ohio Railroad Company sold and transferred its one-fourth interest in the property and franchises of the State Line & Southern Railroad Company to the Pennsylvania Company, in order to comply with the laws of West Virginia with respect to the ownership of competing railroads.

The property and franchises of the State Line & Southern Railroad Company are now held by the Union Trust Company of Pittsburgh, Pa., for the Pittsburgh & Lake Erie Railroad Company and the Pennsylvania Company, joint owners thereof in equal proportions.

THE MONONGAHELA RAILROAD COMPANY.

The Monongahela Railroad Company was incorporated on December 31, 1900, under the laws of the state of Pennsylvania, for the purpose of constructing and operating a railroad and branches thereof between Brownsville, West Brownsville, and Redstone Junction, Pa., and the Pennsylvania-West Virginia state line, above Point Marion, Pa.

This company was organized in accordance with an agreement between the Pittsburgh & Lake Erie Railroad Company and the Pennsylvania Railroad Company, dated November 22, 1901. A copy of this agreement, together with amendments dated June 22, 1904, and May 8, 1911, will be found in Appendix No. 11 of this report.

The agreement of November 22, 1901, was in accordance with the spirit of a so-called gentlemen's agreement entered into by John

Newell, former president of the Pittsburgh & Lake Erie Railroad Company, and George B. Roberts, former president of the Pennsylvania Railroad Company, during the early part of the decade ending December 31, 1889, substantially to the effect that neither of these companies would extend its railroads into the territory of the other, except jointly or by mutual consent, and particularly that the New York Central lines would not extend their railroads across the main line of the Pennsylvania Railroad Company east of Pittsburgh, Pa., into southwestern Pennsylvania and into West Virginia.

During 1900, what are known as the Klondike coal fields, in Fayette county, Pa., were opened by the American Steel & Wire Company and by others, for mining operations, and various industrial plants were established in that section. This resulted in the Pittsburgh & Lake Erie Railroad Company, the Pennsylvania Railroad Company, and the Baltimore & Ohio Railroad Company actively proceeding with the work of building separate railroads into the Klondike region. The construction of three roads into this territory by these companies was found to be a costly undertaking.

J. M. Schoonmaker, vice president of the Pittsburgh & Lake Erie Railroad Company, realized the great cost involved in constructing three independent roads into the Klondike coal region, and that the Pennsylvania Railroad Company was in substance violating the gentlemen's agreement in constructing a railroad across the Monongahela River into the coal region in competition with the Pittsburgh & Lake Erie Railroad Company. Mr. Schoonmaker called upon A. J. Cassatt, now deceased, and then president of the Pennsylvania Railroad Company, and these gentlemen discussed the matter of the construction of three railroads into the Klondike coal fields. The discussion ultimately resulted in a meeting of the executive officials of the Pennsylvania Railroad Company, the Baltimore & Ohio Railroad Company, and the New York Central lines, at which meeting it was arranged, in accordance with the suggestion of Mr. Cassatt, to share the traffic in the region with the Baltimore & Ohio Railroad Company and to form a new railroad company under the name of the Monongahela Railroad Company to construct and establish one line of railroad into the Klondike coal region, the new road to be owned jointly by the Pittsburgh & Lake Erie and the Pennsylvania railroad companies.

At this time the Pennsylvania Railroad had extended the Pittsburgh, Virginia & Charleston Railway up the Monongahela River and crossed the river to the side on which the Pittsburgh, McKeesport & Youghiogheny Railroad was being extended into the coal fields. The Pennsylvania Railroad Company was also extending the South

West Pennsylvania Railway into Uniontown, Pa., and the Baltimore & Ohio Railroad Company was building a railroad across the country via Fairchance, Pa., into the region.

Mr. Schoonmaker stated that at no time has there been any attempt at monopoly in the exercise of the gentlemen's agreement. The sole purpose prompting the joint construction and operation of a single railroad into so-called "common" territory was to save money involved in construction and transportation. The object of building a jointly owned railroad into the common territory was to serve that territory with transportation facilities at one cost and save money in operation, for the benefit of the public as well as of the carriers concerned.

When the Little Kanawha syndicate properties were acquired by the Pittsburgh & Lake Erie Railroad Company, that company, in accordance with the spirit of the gentlemen's agreement, offered to share one-half of its interest in these properties with the Pennsylvania and the Baltimore & Ohio railroad companies, the Pennsylvania taking a one-fourth interest and the Baltimore & Ohio a one-fourth interest, which offer was accepted.

On November 24, 1914, an agreement was executed by the proper officers and directors of the Monongahela Railroad Company and the Buckhannon & Northern Railroad Company for the purpose of merging these companies under the name of the Monongahela Railway Company and for the operation of their properties. The proposed merger is subject to the approval of the Public Service Commission of the Commonwealth of Pennsylvania, under the laws of that state. A copy of the agreement will be found in Appendix No. 12 of this report.

The principal commodity produced in the territory to be served by the joint operation of the Monongahela and Buckhannon & Northern railroads is coal, which will ultimately be exhausted. This is already true of the Connellsville region. It is contended that had three independent lines established railroads in this territory they would now be nearing the point when the coal would be exhausted and would have a large aggregate capital investment upon which no returns could be made.

The Monongahela Railroad and the Buckhannon & Northern Railroad companies are now controlled by the Pennsylvania system and the Pittsburgh & Lake Erie Railroad Company, one of the New York Central lines, through an equal ownership of capital stock.

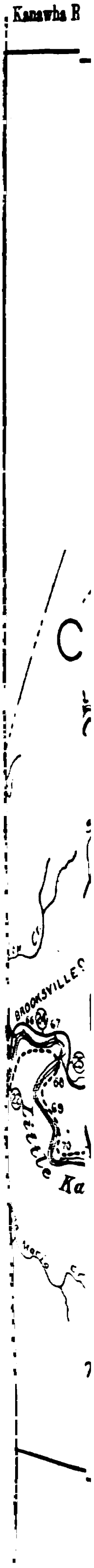
The question that presents itself in connection with the agreements dated November 22, 1901, and November 24, 1914, above referred to, is whether or not the carriers parties thereto have formed a combination in restraint of trade and competition in the business of transportation of passengers and property such as is prohibited by the Sherman antitrust act.

THE MONONGAHELA RAILWAY COMPANY.

This company is formed under an agreement dated November 24, 1914, a copy of which will be found in Appendix No. 12 of this report.

Other information concerning this company appears above under the heading "The Monongahela Railroad Company."

APPENDIXES.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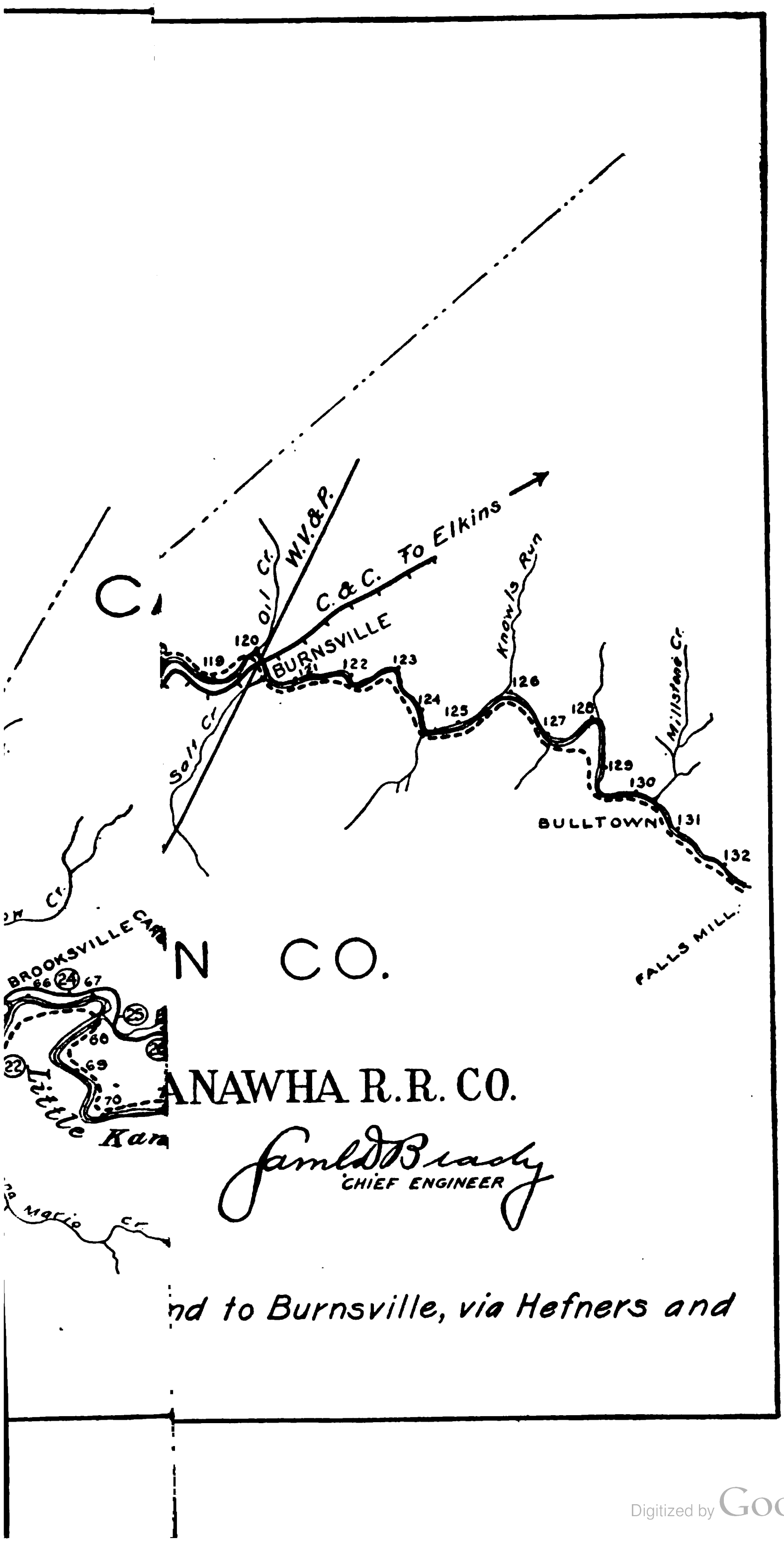
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APPENDIX No. 3.

BLAIR AND FULTON OPTION FOR THE PURCHASE OF A MAJORITY OF THE CAPITAL STOCK OF THE LITTLE KANAWHA RAILROAD COMPANY.

[Copy of instrument dated July 13, 1901.]

Copy of agreement between A. B. White, H. C. Jackson, V. B. Archer, H. B. Nye and J. T. Blair and E. D. Fulton.

This Agreement, made this 13th day of July, 1901, between A. B. White, H. C. Jackson, V. B. Archer and H. B. Nye, stockholders in the Little Kanawha Railroad Company, parties of the first part, and J. T. Blair of Greenville, Pa., and E. D. Fulton of Uniontown, Pa., parties of the second part:

Witnesseth: First: That said parties of the first part, in consideration of the premises and conditions herein set forth, do hereby grant to the second parties the option for the period of ninety days from this date to purchase their stock in the Little Kanawha Railroad Company, that is to say:

	Shares.
A. B. White	373
H. C. Jackson	1,753
V. B. Archer	192
H. B. Nye	282

being a majority in number and amount of the capital stock of the said Little Kanawha Railroad Company, said shares being each of the par value of one hundred dollars, at and for the price of three hundred and fifty thousand dollars.

Second: Out of said sum of three hundred and fifty thousand dollars, if paid in manner hereinafter provided for, said first parties covenant and agree that they will fully pay and discharge all existing liens and incumbrances and all valid claims and demands of every character whatever, against said Little Kanawha Railroad Company, which claims and debts shall be fully paid and discharged out of said purchase price of three hundred and fifty thousand dollars, and further agree that they will cause an order to be entered by the Circuit Court of the United States for the Northern District of West Virginia discharging the present receivers, settling their account, paying fully the costs and expenses of the receivership, and placing the property of said Railroad Company in the hands of its officers and directors. In case any claim or demand is made against said Railroad Company that is not by its Board of Directors considered a valid claim, then first parties shall have the right to contest such claim by leaving a sum of money in the hands of the Trust Company hereinafter provided for to save harmless the second parties from any loss or damage that might arise from the contesting of such claim.

Third: Said sum of three hundred and fifty thousand dollars, if second parties elect to confirm this option, shall be by them deposited with the Citizen's Trust & Guaranty Company of West Virginia, at Parkersburg, West Virginia, to be by said Trust Company held and paid out in the discharge of the aforesaid debts of said Railroad Company upon vouchers made by the present Board of Directors of the Little Kanawha Railroad Company.

Fourth: The certificates of the shares of stock of said first parties hereinbefore enumerated, shall be turned over to said Trust Company, to be held by it in escrow until said second parties shall pay to the said trust company said sum of three hundred and fifty thousand dollars, at which time said stock shall be by said trust Company turned over to and become the absolute property of said second parties.

Fifth: The first parties agree to keep open the annual meeting of the stockholders of said railroad company called for July 9th, 1901, by adjourning such meeting from time to time until said second parties shall elect a Board of Directors at said annual meeting and transact such other business as they might desire to do as the holders of a majority of the stock of said Railroad Company.

Sixth: When said three hundred and fifty thousand dollars shall have been paid to said trust company, said second parties shall thereupon be entitled to immediate possession of said railroad and all its property, including the first mortgage, and two hundred and fifty thousand dollars of first mortgage bonds issued heretofore by said Railroad Company and now held by the Knickerbocker Trust Company of New York in escrow. And said first parties shall upon payment of said $350,000.00 to said Trust Company thereupon forthwith audit all claims and demands that exist against said Railroad Company.

Seventh: Said second parties further agree to use their best efforts to secure to this agreement the assent of Mrs. W. W. Jackson, a stockholder in said railroad company, and if she accepts the terms of this agreement and becomes bound by the conditions thereof, and turns over her stock under the terms of this agreement, then she shall be entitled in proportion to the stock held by her to participate in any surplus that might remain of said three hundred and fifty thousand dollars after discharging the debts and liabilities of the Company.

Eighth: It is distinctly understood and agreed that this contract is a pure option, and in case of failure within the time heretofore provided for on the part of the second parties to pay to said trust company said sum of three hundred and fifty thousand dollars, then this agreement shall become absolutely void as to both parties and no liability of any character whatever shall accrue for or against either of the parties. Provided, however, that in case said second parties shall not succeed in raising the full three hundred and fifty thousand dollars, yet if they shall deposit with said trust company one hundred thousand dollars before the expiration of said ninety days, then they shall be entitled to an additional thirty days within which to fully comply with the terms of this option.

Ninth: It is distinctly understood that if there is a surplus remaining of said three hundred and fifty thousand dollars after discharging the debts and liabilities of the railroad company, that the same shall be distributed amongst the parties of the first part, and Mrs. W. W. Jackson, if she joins in this contract, in proportion to the whole amount of stock here agreed to be sold.

Witness the following signatures and seals:

A. B. WHITE [SEAL]
H. C. JACKSON [SEAL]
V. B. ARCHER [SEAL]
H. B. NYE [SEAL]
J. T. BLAIR [SEAL]
E. D. FULTON [SEAL]

APPENDIX NO. 4.

LITTLE KANAWHA SYNDICATE AGREEMENT.

[Copy of instrument dated December 2, 1901.]

Agreement, dated this 2nd day of December, 1901, by and between George J. Gould, Joseph Ramsey, Jr., and Wm. E. Guy, hereinafter called the Syndicate Managers, parties of the first part, and the Syndicate subscribers hereto, parties of the second part, of whom each is hereinafter termed the Syndicate Subscriber, and all of whom together with the said George J. Gould, Joseph Ramsey, Jr., and Wm. E. Guy, constitute the Syndicate.

Whereas, it is proposed by George J. Gould, Joseph Ramsey, Jr., and Wm. E. Guy, hereinafter designated as Syndicate Managers, to purchase the Little Kanawha Railroad, a line of railroad extending from Parkersburg, West Virginia, up the Little Kanawha River about thirty miles, with all its property, franchises, buildings, rights of way as now constructed and owned along the Little Kanawha River; to extend the same eastwardly; to purchase or build a railway from Parkersburg to Zanesville, Ohio, and to purchase coal lands in West Virginia.

Whereas, for the purpose of providing the necessary money for the purpose herein set forth, said George J. Gould, Joseph Ramsey, Jr., and Wm. E. Guy, and the subscribers hereto wish to form a Syndicate to advance the necessary money, to the amount of Six Million Dollars, for the purposes herein set forth.

Now, this Agreement Witnesseth, That in consideration of the premises, and of their mutual promises, the parties hereto, and the Syndicate Subscribers, severally, agree with each other and with the Syndicate Managers as follows:

I.

The parties hereto form a Syndicate (to be styled the Little Kanawha Syndicate), for the purpose of acquiring and purchasing said railroad properties and other properties hereinbefore described, on terms satisfactory to the Syndicate Managers, and, having acquired the same, of improving, extending, merging, operating, controlling and disposing of the same as may be determined by the Syndicate Managers, to be for the benefit of such Syndicate.

II.

Each subscriber hereto, and to any counterpart hereof, shall set opposite his name the amount of his subscriptions to the Syndicate, and shall be called upon to pay, and be liable for only, such amount as shall bear, to the obligation of the Syndicate not exceeding $8,000,000, the same ratio or proportion as his subscription bears to said maximum obligation. In the event that more than the aggregate amount of Six Million dollars is subscribed, the Syndicate Managers may reduce any or all subscriptions hereto in such an amount, in their discretion, as shall make the aggregate subscription Six Million dollars, and, in case any such reduction shall be made, the Syndicate Managers shall notify the Subscribers whose subscriptions have been reduced, of the amount of such reductions; or the Managers may, in their discretion, accept subscriptions in excess of Six Million dollars provided that the maximum amount shall not in any event exceed Eight Million dollars. The funds of the Syndicate shall be applied, used and disbursed by the Syndicate Managers for the purposes above set forth, and such other purposes as may become necessary in carrying out the Syndicate plans.

III.

The said Syndicate Managers agree to proceed with reasonable diligence to construct or purchase said railway properties and other properties hereinbefore mentioned, at such prices and upon such terms of payment as shall, in their judgment, be the best obtainable in the circumstances.

IV.

The Syndicate Subscribers irrevocably nominate and appoint the Syndicate Managers and the survivor or survivors of them, their agents and attorneys, with full power and authority to do any and all acts and enter into and execute any and all agreements or other instruments necessary or proper, or by the Syndicate Managers deemed expedient in the premises, to carry out and perform the said agreements to construct or purchase said properties, and the purposes of this Syndicate Agreement, and to that end, to absolutely control the property so to be constructed or purchased, as fully, in all respects as if they were the absolute owners thereof, with power to borrow money thereon and pledge the property and Syndicate Subscriptions, or any portion thereof, as security therefor, and to sell and dispose of the same upon such terms as may be, in their judgment, for the interest of this Syndicate, and, with like power, to hold, manage, control and dispose of, in their discretion, any and all stocks and securities acquired on any sale or disposal of said property or any part thereof.

V.

Unless sooner terminated by the Syndicate Managers, in their discretion, and upon notice to the Syndicate Subscribers, this Agreement shall continue in force and operation for the period of three years from and after the first day of February, 1902, and for said further period thereafter as the Syndicate Managers, in their discretion, find reasonably necessary or advisable in the interests of the Syndicate Subscribers.

VI.

The Syndicate Subscribers will, from time to time, and at any time, on call of the Syndicate Managers,.and to the amount of such call or calls, make cash payments on account of their respective subscriptions hereunder upon ten days' written notice by mail from the Syndicate Managers.

All payments hereunder from time to time by the Syndicate Subscribers shall be made to the Trust Company, designated in such call, for the account of the Syndicate Managers.

Each Subscriber shall, at the time of making each of the payments called hereunder, receive a certificate issued by said Trust Company, certifying the amount of such payment, and the interest of such subscriber in said Syndicate, subject to the terms and conditions of this agreement. Such certificates shall be in assignable form, and shall be transferable only on the books of said Trust Company by assignment and surrender of such certificates, and, upon such assignment and surrender, a new certificate shall be issued in the name of the transferee.

VII.

The Syndicate Managers shall have the sole direction, management and the entire conduct of the Syndicate, and the enumeration of particular or specific powers in this Agreement shall not be considered as in any way limiting or abridging the general power or discretion intended to be conferred upon and reserved to the Syndicate

Managers in order to authorize them to do any and all things proper, necessary or expedient in their discretion to carry out the purposes of this Agreement; neither shall they or any of them be liable under any of the provisions of this Agreement, or in or for any matter connected therewith, except for want of good faith and the failure to exercise reasonable diligence.

VIII.

The Syndicate Managers shall be entitled to a commission of one and one-half per centum on the amount of the subscriptions hereto, without any obligation to share the same with any subscriber, or to account therefor to the Syndicate or to any subscriber.

All expense of the Syndicate Managers, including counsel fees, brokers' commissions and all other disbursements and expenses made by them in connection with the carrying out of the purposes of this Agreement, shall be chargeable to the Syndicate, and all profits and losses of the Syndicate shall be divided and borne pro rata. The Syndicate Managers are to be subscribers to the Syndicate, and, to the extent of any such subscription or reservation by them, they are to participate in the profits and losses to the same extent as other subscribers.

Should the Syndicate Managers, in the carrying out of this Agreement, sell and dispose of said properties, or stocks and securities received therefor, the net proceeds of such sale shall be distributed pro rata to the subscribers from time to time, in the discretion of the Syndicate Managers. Should such railroad properties not be sold, but be capitalized by the formation of a new company or companies, of which company or companies the Syndicate Managers acquire the securities issued, or should said properties or any part thereof, be disposed of for stocks or securities, which are not sold by the Syndicate Managers, then, after the payment of all expenses and commissions accruing under this agreement to said Syndicate Managers, and, upon the termination of the Syndicate, such securities so acquired shall be distributed pro rata to the subscribers hereto, or their assigns, as provided herein.

IX.

Each Syndicate Subscriber hereby ratifies, assents to, and agrees to be bound by any action of the Syndicate Managers taken under this Agreement, and agrees to perform all of his undertakings hereunder, from time to time, on call of the Syndicate Managers, to the full extent of the amount set opposite his name or allotted to him; but he shall be liable hereunder solely to the Syndicate Managers or their assigns, and only to the extent of his individual participation in the Syndicate.

Each and every party hereto will, upon reasonable request, execute and deliver all further writings which may be necessary or proper to carry this agreement into effect.

The failure of any Syndicate Subscriber to perform any of his undertakings, hereunder, shall not release or affect any other Syndicate Subscriber. The Syndicate Managers may, in their discretion, by written consent, release any Syndicate subscriber. In case any Syndicate Subscriber shall fail to perform any of his undertakings hereunder, or be released, by the Syndicate Managers, other subscribers may be received by the Syndicate Managers, and take the share of the subscriber so failing to perform his undertakings, or so released. Upon the failure of any Syndicate subscribers to perform any of his undertakings hereunder, the Syndicate Managers shall have the right, at their option, to exclude such Syndicate Subscriber from further interest and participation in the Syndicate, and to hold him liable for all damages caused by his failure.

Nothing contained in this Agreement, or otherwise, shall constitute the Syndicate Subscribers partners with the Syndicate Managers or with one another, or render them liable to contribute more than their ratable amounts as aforesaid, or entitle them to any participation in the results or profits of said Syndicate other than as specified in this Agreement.

X.

This Agreement shall bind and benefit ratably according to the account of the several Subscriptions, not only the parties hereto, but their respective successors, survivors, assigns and personal representatives. An original hereof is to be signed by the Syndicate Managers and deposited with the Trust Company so to be designated by them and counterparts may be signed by the Syndicate Subscribers and retained by the Syndicate Managers, and all shall be taken and deemed one original instrument.

XI.

All notices issued by the Syndicate Managers hereunder shall be mailed to the addresses of Subscribers as given below, opposite their respective names.

The holding of certificates issued by said Trust Company shall constitute such holders parties to this Agreement, as fully to all intents and purposes as if signing the same.

XII.

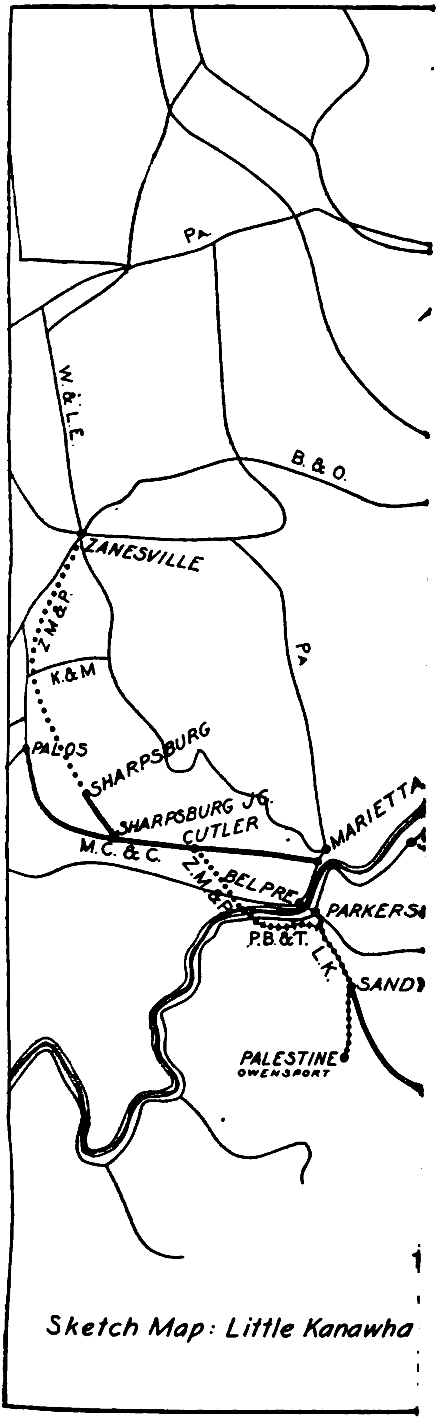
It is agreed that the Syndicate Managers herein named may at any time, in their discretion, appoint and associate with themselves in the performance of the duties imposed by this Agreement suitable persons as additional Syndicate Managers, and the persons so appointed shall, with those named in this Agreement possess and exercise all the power conferred upon the Syndicate Managers by the terms of this contract.

Notice of such appointments, if made, shall be given to the Syndicate Subscribers.

In witness whereof, the Syndicate Managers, parties of the first part, have subscribed an original hereof, and the Syndicate Subscribers, parties of the second part, have subscribed said original or counterparts thereof, as of the day and year first above written.

Name.	Address.	Amount.

Appendix No. 5.—Copy of sketch map of Li
Railroad, prepared by Sam



Sketch Map: Little Kanawha

APPENDIX No. 6.

Capital and Income Accounts, etc., for years ended June 30.

Year.	Capital stock outstanding.	Investment in road and equipment.	Miles operated.	Freight revenue.	Passenger train revenue.	Other revenue.	Total revenue.	Operating expenses.	Net revenue or deficit.	Gross income or loss.	Taxes.	Total deductions.	Balance for year.
1902	$509,500	$512,496.24	30	$20,316.56	$13,827.73	$430.69	$34,574.98	$25,734.57	$8,840.41	$8,840.41	$15.84	$15.84	[1] $8,824.57
1903	509,500	523,809.46	30	41,097.62	29,156.45	200.25	70,454.32	53,850.14	16,604.18	16,604.18	1,017.22	1,017.22	[1] 15,586.96
1904	509,500	523,809.46	30	34,583.65	26,110.04	141.45	60,835.14	53,350.82	7,484.32	7,484.32	1,660.39	1,660.39	[1] 5,823.93
1905	509,500	523,809.46	30	26,279.23	24,379.45	193.66	50,852.34	48,687.25	2,165.09	2,165.09	2,005.44	2,005.44	[1] 159.65
1906	509,500	526,801.46	30	22,197.09	24,235.30	1,469.09	47,901.48	43,441.28	4,460.20	4,460.20	2,320.63	2,320.63	[1] 2,139.57
1907	509,500	525,635.46	30	22,015.65	27,404.87	65.52	49,486.04	45,495.94	3,990.10	3,990.10	7,106.79	7,121.79	[2] 3,131.69
1908	509,500	524,885.46	30.44	20,681.29	28,125.41	1,679.50	50,486.20	63,321.48	[3] 12,835.28	[3] 12,827.28	3,844.63	6,777.22	[2] 19,604.50
1909	509,500	524,766.77	30.44	16,813.77	25,595.04	740.00	43,148.81	56,330.94	[3] 13,182.13	[3] 13,142.13	3,578.85	9,054.71	[2] 22,196.84
1910	509,500	524,766.77	30.44	18,322.28	23,769.71	1,092.35	43,184.34	53,234.16	[3] 10,049.82	[3] 9,620.32	2,866.51	6,887.00	[2] 16,507.82
1911	509,500	524,953.77	30.44	15,165.44	14,176.46	2,397.43	31,739.33	42,017.07	[3] 10,277.74	[3] 9,797.74	2,214.48	7,276.35	[2] 17,074.09
1912	509,500	522,239.86	30.44	13,644.23	18,335.88	1,504.51	33,484.62	50,941.77	[3] 17,457.15	[3] 17,057.15	2,092.67	7,996.84	[2] 25,053.99
1913	509,500	522,239.86	30.44	9,181.60	17,847.88	1,261.63	28,291.11	46,194.40	[3] 17,903.29	[3] 17,901.29	2,037.84	7,651.41	[2] 25,552.70
1914	509,500	522,239.86	30.44	11,811.14	21,327.24	2,253.20	35,391.58	47,226.86	[3] 11,835.28	[3] 11,835.28	2,062.42	9,372.41	[2] 21,207.69

[1] Credit.

[2] Debit.

[3] Deficit.

APPENDIX No. 7.

MEMORANDUM OF AGREEMENT AND UNDERSTANDING BETWEEN W. H. NEWMAN, J. M. SCHOONMAKER, AND JOSEPH RAMSEY, JR., CONCERNING THE PURCHASE AND SALE OF THE PROPERTY AND FRANCHISES OF THE LITTLE KANAWHA SYNDICATE AND THE GREENE COUNTY RAILROAD COMPANY.

[Copy of instrument dated June 17, 1905.]

NEW YORK, *June 17, 1905.*

Memorandum of Agreement and Understanding between Messrs. W. H. Newman, J. M. Schoonmaker and Joseph Ramsey, Jr.

The said Joseph Ramsey representing the full authority of the Little Kanawha Syndicate, which owns and controls certain lands and railways constructed, and others in process of construction, and certain coal lands situated in West Virginia, and also representing the ownership of the Washington & Green County Railway Company and all of the stock therein, and branch lines, being located in the counties of Washington, Greene, Fayette and Allegheny, with authority to negotiate for and sell the aforesaid properties, it is understood and agreed as follows:—

That the said Messrs. Newman and Schoonmaker are to have until the 24th of June to decide whether they will take the properties on the following general terms and conditions:

All of the properties owned and controlled by the Little Kanawha Syndicate, consisting of all of the stock of the Marietta, Cleveland & Columbus R'y in Ohio, now in operation, extending from Marietta to Palos on the Ohio Central Ry, a distance of about forty-one miles, with a branch of about six miles to Joy; all of the stocks and property, rights of way, etc., of the Zanesville, Marietta & Parkersburg Line, extending from Zanesville, O., to a point on the Ohio River below Parkersburg in process of construction; all of the stocks, franchises and property of the Parkersburg Bridge & Terminal R'y Co., extending from the north bank of the Ohio River, across the river to and through Parkersburg to a connection with the Little Kanawha R'y Company in West Virginia; the stock of the Little Kanawha Railway extending from Parkersburg to Palestine in West Virginia, to the extent of about sixty-six per cent of the total, and all of the bonds of the Company; the Little Kanawha Railway extension, from a point on the Little Kanawha Ry. near Elizabeth to Burnsville, W. Va., a distance of 70 miles, with all the rights of way, property, franchises and work of all nature connected therewith; the Burnsville & Eastern Ry. Co's stock and all of its property from Burnsville to Belington, W. Va.; all of the stock in the Buckhannon & Northern R'y Co., and all of its properties extending from Belington north, through Fairmont to the State Line between Pennsylvania and West Virginia, with the property from Rivesville just north of Fairmont along the river to the State Line opposite Point Marion; the Belington & Northern R. R., 4½ miles, constructed and in operation with all franchises, stocks, railway properties and rights, claims or privileges held or owned by the Little Kanawha Syndicate in the States of West Virginia and Ohio; also 57,471 acres, more or less of a coal tract located near Fairmont and between it and the Pennsylvania State Line known as the Guffey coal tract,—said coal tract being underlaid with Pittsburgh vein of coal, ranging from seven to ten feet in thickness, also between 35,000 and 38,000 acres of coal lands situated on the Little Kanawha River and branches tributary thereto south of Clarksburg, W. Va., and underlaid with merchantable coal of Pittsburg and Freeport measures; the Washington and Green County Railroad properties, consisting of all of the stocks in the company, all of its franchises, rights of way, surveys and properties of all description owned or controlled by it and situated in the counties of Washington, Greene, Allegheny and Fayette.

For the properties of the Little Kanawha Syndicate as described above, and with all other rights, privileges, claims, etc., of whatsoever kind owned by it, the second parties, Messrs. Newman and Schoonmaker, or their associates or assigns, in the event of their accepting this proposition are to pay the cost as shown by the accounts, books, etc., of the Little Kanawha Syndicate, including the claims and liabilities of whatsoever kind, plus six per cent interest upon the amounts actually assessed and paid in by the underwriters of the Syndicate which approximate $5,400,000, with twelve and ahalf per cent profit upon the said amounts so paid in by the Syndicate underwriters, provided however that the total aggregate amount to be paid for the Little Kanawha properties including all its liabilities of whatsoever kind should not exceed $8,500,000.00; and for the Washington & Greene County Railway properties, they are to pay or cause to be paid $250,000.00.

In the event of their accepting definitely this proposition by the date above mentioned they are to have until the 1st of September to make an examination of the properties and the cost thereof, and if the accounts and examination of the coal and other properties substantially verify the above statement, they are to pay for the properties as above fixed or recited upon such terms and times as to payment as may be agreed upon on or after Sept. 1st.

The decision reached by said Newman and Schoonmaker to be cabled by Newman to Ramsey at Queenstown, Eng., in time to reach him there on or before the 24th of June.

Provided further,—that should Messrs. Newman and Schoonmaker desire to purchase only the Buckhannon & Northern and Washington & Greene County R'ys with the Guffey coal tract, then the price to be paid will be $7,000,000.00 for the Buckhannon & Northern and the Guffey Coal Tract, and $250,000.00 for the Washington & Greene County.

W. H. Newman.
J. M. Schoonmaker.
Joseph Ramsey, Jr.

APPENDIX No. 8.

AGREEMENT BETWEEN THE LITTLE KANAWHA SYNDICATE AND THE PITTSBURG & LAKE ERIE RAILROAD COMPANY FOR THE SALE AND PURCHASE OF THE PROPERTY AND FRANCHISES OF THE SYNDICATE.

[Copy of instrument dated September 1, 1905.]

MEMORANDUM OF AGREEMENT made and concluded this first day of September, A. D. 1905, by and between THE LITTLE KANAWHA SYNDICATE, hereinafter designated the "Syndicate," acting through GEORGE J. GOULD, of New York, and WILLIAM E. GUY and JOSEPH RAMSEY, JR., of St. Louis, Missouri, as Syndicate Managers, party of the first part, and the PITTSBURG AND LAKE ERIE RAILROAD COMPANY, hereinafter designated the "Purchaser," party of the second part:

WHEREAS, on June 17, 1905, the said Ramsey, one of the Syndicate Managers, made a written offer to sell to W. H. Newman and J. M. Schoonmaker, representing and acting on behalf of the Purchaser, the property hereinafter specified on the terms hereinafter set forth, which offer was by them subsequently accepted, and thereby and by this ratification a firm contract of purchase and sale was entered into, subject only to the conditions set forth in said offer:

NOW, THEREFORE, in confirmation of said contract in so far as it relates to the property of the Syndicate and in further evidence thereof, and for and in consideration of the premises, the parties hereto agree as follows:

FIRST. That the Syndicate hereby sells and will, by proper and legal assurances, convey and deliver all the following property, to wit:

ALL the stock of the Marietta, Columbus and Cleveland Railway Company, now in operation, extending from Marietta to Palos on the Ohio Central Railway, a distance of about forty-one miles, with a branch of about six miles to Joy; all the stocks and property, rights of way, franchises, etc., of the Zanesville, Marietta and Parkersburg Line, extending from Zanesville, Ohio, to a point on the Ohio River, below Parkersburg, in process of construction; all the stock, franchises and property of the Parkersburg Bridge and Terminal Railway Company, extending from the north bank of the Ohio River, across the river and through Parkersburg to a connection with the Little Kanawha Railroad Company in West Virginia; 1,334 shares of preferred and 1,637 shares of the common stock, being a controlling interest of the total of the stock of the Little Kanawha Railroad Company, extending from Parkersburg to Palestine in West Virginia, and all the outstanding bonds of said company; the Little Kanawha Railroad Extension, from a point on the Little Kanawha Railroad near Elizabeth, to Burnsville, West Virginia, a distance of seventy miles, with all the rights of way, property, franchises and work of all nature connected therewith; all the stock of the Burnsville and Eastern Railway Company and all its property, real and personal, from Burnsville to Belington, West Virginia; all the stock of the Buckhannon and Northern Railroad Company, and all its properties, extending from Belington north, through Fairmont, to the state line between Pennsylvania and West Virginia, with the property, rights of way and franchises from Rivesville, just north of Fairmont, along the river to the state line opposite Marion; the stock of the Belington and Northern Railroad, four and one-half miles constructed and in operation; and all the franchises, stocks, railway property and rights, claims or privileges, held or owned by the Little Kanawha

Syndicate in the States of West Virginia and Ohio, whether herein enumerated or not, the intent hereof being to sell, convey and deliver, on the part of the Syndicate, all its railway property, claims, interests and demands whatsoever, whether owned held or claimed as railway franchises or property, real, personal and mixed; also 57,471 acres, more or less of coal and mining rights, appurtenant thereto, subject to the reservations and limitations contained in the conveyances by which the said coal and mining rights are vested in the Syndicate; said coal being in and under a certain tract of coal lands located near Fairmont and between it and the Pennsylvania state line in Marion, Monongalia and Wetzel counties in the State of West Virginia, known as the "Guffey Coal Tracts;" also the coal, surface and timber rights in, on and under, between 35,000 and 38,000 acres of land, more or less, situate on the Little Kanawha River and branches tributary thereto and adjacent lands.

The intent hereof being that the Syndicate shall sell, convey and deliver to the Purchaser all such rights, title, claim, interest and demand of whatsoever nature it holds, and only such, in and to the coal, mining and timber rights and lands above mentioned; also the interest of the Syndicate in any other coal or timber lands, and all property, rights and interests of every kind belonging to the Syndicate, whether herein specified or not.

SECOND. The properties of the Syndicate hereinbefore described and specified, the Purchaser agrees to buy and take, and shall pay the Syndicate for the same, in the manner hereinafter set forth, the cost of the same, as shown by the accounts, books, etc. of the Syndicate, and assume and pay all claims and liabilities and expenses of whatsoever nature, for which the Syndicate or its Managers may be responsible in the conduct of its affairs, plus six (6%) per cent interest to September 1st, 1905, upon the amounts actually assessed and paid in by the underwriters of the Syndicate, which amounts so assessed and paid in aggregate Five Million, Three Hundred Ninety Three Thousand, Five Hundred ($5,393,500) Dollars, with twelve and one-half (12½%) per cent profit to the Syndicate underwriters, upon the said amount of Five Million Three Hundred and Ninety-Three Thousand Five Hundred Dollars ($5,393,500) so paid in by the Syndicate underwriters, provided, however, that the total aggregate amount to be paid by the Purchaser for the property of the Syndicate, including said interest, profits, and all its liabilities and expenses of whatsoever kind, as aforesaid, shall not exceed Eight Million Five Hundred Thousand Dollars ($8,500,000).

ALL the stocks, bonds, lands and properties enumerated and described in the first section hereof shall be, by proper instruments and assignments, effectually transferred and conveyed to the Purchaser on or before the first day of November, 1905, at the office of the Treasurer of the Pittsburgh & Lake Erie Railroad Company in the City of Pittsburgh. At the time of such transfer and conveyance, the Purchaser argees to pay to the Syndicate One Million Five Hundred Thousand Dollars ($1,500,000) in cash.

THIRD. The Syndicate, at the time of the payment of said One Million Five Hundred Thousand Dollars ($1,500,000) on account of the purchase price, will cause to be delivered to the Purchaser, or to such person as said Purchaser shall designate, all deeds, conveyances, contracts, papers, instruments of writing, corporate records or other evidences of title of ownership, and also all maps, surveys, etc., relating to the property to be conveyed and delivered in accordance with the terms and conditions hereof, and will cause the executive officers and a majority of the directors of the several corporations whose property and franchises and capital stock are the subject matter of this agreement, to resign from their respective positions, and elect thereto such persons as the Purchaser may designate, and before resigning, so far as it can and may lawfully do so, cause such executive officers and directors, at the request of the Purchaser, to take such action and to execute and deliver, or cause to be executed and delivered, all deeds, papers, contracts and instruments in writing by their respective corporations, or as individuals, as may be reasonably required to legally carry fully into force and effect the covenants of the Syndicate herein contained, and to convey and assure to the Purchaser, its assignee or nominee, the full right, title, interest, claim and demand of every kind and nature whatsoever of the Syndicate, of, in and to the property, real and personal, and the franchises of the Syndicate herein mentioned, or intended so to be, to the end that there may be conveyed to the Purchaser all the property of the Syndicate of whatsoever nature, subject to all the claims and liabilities as hereinbefore specified, provided that the Purchaser, in no event, shall be obliged to pay therefor a sum in excess of Eight Million Five Hundred Thousand Dollars ($8,500,000).

FOURTH. The Syndicate agrees that the duly accredited representative of the Purchaser may examine the books, accounts, records and papers of the Syndicate and of said corporations, for the purpose of ascertaining and reporting to the Purchaser the title of the Syndicate to the stocks, bonds and properties hereby agreed to be sold, the cost thereof to the Syndicate, and the amount of the claims, liabilities and expenses for which the Syndicate or its Managers may be responsible, and the Syndicate will afford to such representatives all reasonable assistance and facilities in making such examination, which shall be concluded and the result thereof reported to the Purchaser not later than December 1, 1905. Upon receiving such report the parties hereto shall agree as to the exact amount to be paid for said stocks, bonds and properties on the basis hereinbefore set forth and in accordance with the conditions of this agreement. If they shall fail to agree thereon, each party shall appoint an arbitrator, and the two so chosen shall appoint a third, and the decision of the said arbitrators or of two of them, as to the exact amount of said purchase price, on the basis aforesaid, shall be final and binding upon both the Syndicate and the Purchaser. Within thirty days after the exact amount of said purchase price shall be determined, either by agreement or by arbitration, as herein provided, the Purchaser will pay to the Syndicate, in cash, the amount so determined, less the One Million Five Hundred Thousand Dollars ($1,500,000) to be piad at the time of conveyance and transfer, as above stated.

At the time of making the final payment, the Purchaser will also pay to the Syndicate interest at the rate of five per cent (5%) per annum from September 1, 1905, on One Million Five Hundred Thousand Dollars ($1,500,000) to the date when that sum shall have been piad, and on the balance of the purchase price to the date when such balance is paid.

IN WITNESS WHEREOF, the Syndicate Managers have hereunto set their hands and seals and the Purchaser hereunto sets its corporate seal and causes these presents to be signed by its President, the day and year first above written.

THE LITTLE KANAWHA SYNDICATE
By GEORGE J. GOULD [SEAL]
WILLIAM E. GUY [SEAL]
JOSEPH RAMSEY, JR. [SEAL]
Syndicate Managers.
PITTSBURGH & LAKE ERIE RAILROAD COMPANY,
By W. H. NEWMAN, *President.*

Attest:
[SEAL.]
JNO. G. ROBINSON, *Secretary.*

APPENDIX No. 9.

AGREEMENT BETWEEN JOSEPH RAMSEY, JR., AND OTHERS, AND THE PITTSBURG AND LAKE ERIE RAILROAD COMPANY, FOR THE PURCHASE AND SALE OF THE PROPERTY AND FRANCHISES OF THE GREENE COUNTY RAILROAD COMPANY.

[Copy of instrument dated September 25, 1905.]

THIS AGREEMENT, made the 25th day of September, 1905, by and between JOSEPH RAMSEY, JR., JAMES T. BLAIR, JAMES W. PATTERSON, ELWOOD D. FULTON and A. M. NEEPER, (hereinafter designated "Vendors", parties of the first part, and THE PITTSBURGH AND LAKE ERIE RAILROAD COMPANY, (hereinafter designated "Purchaser"), party of the second part, WITNESSETH AS FOLLOWS:—

WHEREAS, on June 17, 1905, the Vendors, by their duly authorized representatives, made their written offer to sell to W. H. NEWMAN and J. M. SCHOONMAKER, representing and acting on behalf of the Purchaser, the property hereinafter specified on the terms hereinafter set forth, which offer was by them subsequently accepted, and thereby a firm contract of purchase and sale was entered into, subject only to the conditions set forth in said offer,

NOW, THEREFORE, in confirmation of said contract and in further evidence thereof, and for and in consideration of the premises, the parties hereto agree as follows:

The Vendors agree to sell and deliver to the Purchaser, and it agrees to buy, at and for the price of Two Hundred and Fifty Thousand (250,000) Dollars, to be paid as hereinafter provided, the entire capital stock of the Greene County Railroad Company, a corporation incorporated under the laws of the State of Pennsylvania, for the purpose of constructing a railroad between Washington and Waynesburg, in said State, and various branches thereto; said railroad company at the time of the delivery of said stock to be free and clear of debt, due and payable or incurred for salaries, services, wages, surveys, construction or taxes; and any other liability to follow the stocks delivered, and to be paid by said railroad company.

The Vendors will transfer and deliver at the office of the Treasurer of the Pittsburgh and Lake Erie Railroad Company in Pittsburgh, Pennsylvania, said stock to the Purchaser, or to its appointee or assignee upon the 1st day of November, 1905, and at the time of such transfer and delivery the Purchaser agrees to pay to the Vendors, or to such persons as they may designate, said purchase price of Two Hundred and Fifty Thousand (250,000) Dollars in cash.

The Vendors on their part agree that they will, at the time of receiving such payment, execute and deliver to the Purchaser their joint and several personal bond in the sum of One Hundred Thousand (100,000) Dollars, conditioned to save, indemnify and keep harmless said Greene County Railroad Company and also said Purchaser, its successors and assigns, from all liability, loss or expense caused by claims against said Greene County Railroad Company up to the time such stock is paid for and delivered, on account of salaries, services, wages, surveys, construction and taxes.

The Vendors will cause to be delivered to the Purchaser all the corporate records, papers, and contracts, maps and surveys of the Greene County Railroad Company, and will cause the present executive officers and directors of the said railroad company to take such action and to execute and deliver such instruments in writing under the corporate seal of said railroad company or otherwise, as may be necessary and reasonably required to vest in said purchaser, its successors and assigns, all the title, claim and demand of said railroad company as of the date hereof to its property, real and personal, and its franchises; and will also cause said executive officers and directors of said Greene County Railroad to resign and duly elect their successors in office, such persons as may be designated by the Purchaser, its successors or assigns.

This agreement may be executed in counterparts and when so executed and delivered shall be effective and binding upon the parties hereto.

IN WITNESS WHEREOF, the Vendors have hereunto set their hands and seals, and the Purchaser has hereunto set its corporate seal, and caused these presents to be signed by its President, the day and year first above written.

JOSEPH RAMSEY [SEAL]
JAMES T. BLAIR [SEAL]
J. W. PATTERSON [SEAL]
ELWOOD D. FULTON [SEAL]
A. M. NEEPER [SEAL]
THE PITTSBURGH & LAKE ERIE RAILROAD COMPANY,
By W. H. NEWMAN, *President.*

Witness:
E. D. TAYLOR
Attest:

JNO. G. ROBINSON, *Secy.*

[Corporate seal]

APPENDIX No. 10.

AGREEMENT BETWEEN THE PITTSBURGH AND LAKE ERIE RAILROAD, THE BALTIMORE AND OHIO RAILROAD, AND THE PENNSYLVANIA COMPANIES, RELATIVE TO THE JOINT OWNERSHIP OF THE PROPERTY AND FRANCHISES OF THE LITTLE KANAWHA SYNDICATE AND THE GREENE COUNTY RAILROAD COMPANY.

[Copy of instrument dated February 26, 1906.]

AGREEMENT, made this 26th day of February, 1906, between the Pittsburgh & Lake Erie Railroad Company, the Pennsylvania Company and the Baltimore & Ohio Railroad Company (hereinafter respectively referred to as the Pittsburgh & Lake Erie, the Pennsylvania and the Baltimore & Ohio):

1. For the consideration hereinafter stated, the Pittsburgh & Lake Erie hereby sells, assigns and transfers to the Pennsylvania one-quarter of its interest, and to the Baltimore & Ohio another quarter of its interest in, to and under a certain agreement dated September 1st, 1905, between the Little Kanawha Syndicate and the Pittsburgh & Lake Erie, for the sale to it of the assets of said Syndicate, and in and to the assets therein agreed to be sold. A copy of said agreement is hereto annexed, marked "A."

2. The Pennsylvania and the Baltimore & Ohio each hereby purchases from the Pittsburgh & Lake Erie such one-quarter interest under said agreement and in said assets, and in payment therefor, each assumes and agrees to pay and discharge one-quarter of the obligations and liabilities of the Pittsburgh & Lake Erie under said agreement with the Little Kanawha Syndicate, from time to time as they become due.

The Pittsburgh & Lake Erie hereby acknowledges the receipt of $381,041.66 from the Pennsylvania, and of the same amount from the Baltimore & Ohio, being their proportionate shares of $1,500,000.00 heretofore paid by the Pittsburgh & Lake Erie under said agreement with the Little Kanawha Syndicate, with interest to the date hereof.

3. In consideration of $63,506.94 to it paid, the Pittsburgh and Lake Erie hereby sells, assigns and transfers to the Pennsylvania one-quarter interest in 5,000 shares, each of the par value of $50.00, of the capital stock of the Greene County Railroad Company, a corporation organized under the laws of the State of Pennsylvania, for the purpose of constructing a railroad between Washington and Waynesburg in said State, and various branches thereof; and in consideration of the same amount, hereby sells, assigns and transfers to the Baltimore & Ohio another one-quarter interest in said stock.

4. The parties hereby appoint William H. Newman, J. M. Schoonmaker, James McCrea and Hugh L. Bond a committee to represent them in the carrying out of said agreement with the Little Kanawha Syndicate, in making settlement thereunder, and to consider and recommend to the respective Boards of Directors of the parties what arrangements should be made for the division between the parties of the assets acquired from the said Syndicate and of said Greene County Railroad Stock, or for the future joint ownership thereof, through corporations formed or to be formed or otherwise.

5. The assets purchased from the Little Kanawha Syndicate and the stock of the Greene County Railroad Company shall be held by the Union Trust Company of Pittsburgh as Trustee for the parties hereto, until final settlement shall have been

made under the agreement with the Little Kanawha Syndicate, and until the parties shall have agreed upon the disposition to be made of said assets and stock. Said Trust Company shall receive the rents, revenues, and income from the property held by it, and, from time to time, shall pay the same over to the parties hereto in proportion to their interests.

In administering its trust, it shall follow the directions given to it by said representatives of the parties, and shall transfer and dispose of said assets and stock as said parties may direct.

Said trust company shall not be liable for any acts done or omitted by it under the direction of said representatives.

In case the parties shall not agree as to the disposition to be made of the said assets and stock, any one of the parties hereto may terminate said trust and notify said Trust Company in writing that it has so terminated the same, whereupon the Trust Company shall transfer to each of said parties or its nominee its proportionate share of said assets and stock, except that the lands included in said assets shall be conveyed to the parties or their nominees as tenants in common.

6. All expenditures necessary to be made by the parties hereto in connection with the carrying out of the agreement with the Little Kanawha Syndicate and in the administration of the properties covered thereby, and in connection with the Greene county Railroad, shall be made under the direction of said representatives, and such expenditures, including the charges of said Trust Company, shall be borne by the parties in proportion to their interests.

IN WITNESS WHEREOF, the parties have caused their corporate seals to be hereto affixed and these presents to be signed by their respective Presidents or Vice-Presidents, the day and year first above written.

PITTSBURGH & LAKE ERIE RAILROAD COMPANY,
By J. M. SCHOONMAKER, *Vice-President.*

Attest:
[SEAL.] JNO. G. ROBINSON, *Assistant Secretary.*

PENNSYLVANIA COMPANY,
By A. J. CASSATT, *President.*

Attest:
[SEAL.] S. B. LIGGETT, *Secretary.*

THE BALTIMORE & OHIO RAILROAD COMPANY,
By OSCAR G. MURRAY, *President.*

Attest:
[SEAL.] C. W. WOOLFORD, *Secretary.*

The Union Trust Company of Pittsburgh hereby accepts the trust created by the foregoing instrument, and agrees to discharge the same in accordance with the terms and provisions thereof.

IN WITNESS WHEREOF, it has caused its corporate seal to be hereto affixed and these presents to be signed by its President, this 26th day of February, 1906.

UNION TRUST COMPANY OF PITTSBURGH,
By H. C. MCELDOWNEY, *President.*

Attest:
[SEAL.] SCOTT HAYES, *Secretary.*

[Exhibit A is omitted in this appendix, as it is a complete copy of the agreement dated September 1, 1905, which appears as Appendix No. 8 in this report.]

APPENDIX No. 11.

AGREEMENT BETWEEN THE PITTSBURG AND LAKE ERIE RAILROAD COMPANY AND OTHERS, AND THE PENNSYLVANIA RAILROAD COMPANY AND OTHERS, FOR THE MANAGEMENT OF THE MONONGAHELA RAILROAD COMPANY AND THE OPERATION OF ITS RAILROAD LINES, TOGETHER WITH AMENDMENTS THERETO.

[Copies of instruments dated November 22, 1901, June 22, 1904, and May 8, 1911.]

Agreement dated November 22, 1901.

An Agreement, Made and entered into this 22nd day of November, in the year of our Lord one thousand nine hundred and one, by and between The Pittsburg and Lake Erie Railroad Company, for itself and as lessee of The Pittsburgh, McKeesport and Youghiogheny Railroad Company, and The Pittsburg, McKeesport and Youghiogheny Railroad Company, parties of the first part, and The Pennsylvania Railroad Company, for itself and as lessee of the Pittsburgh, Virginia and Charleston Railway Company and the South West Pennsylvania Railway Company, parties of the second part, Witnesseth:

Whereas, The Pittsburgh and Lake Erie Railroad Company, as lessee of The Pittsburgh, McKeesport and Youghiogheny Railroad Company controls the railroad of said company, which extends from Pittsburg up the valley of the Monongahela River to McKeesport, and thence up the west bank of the Youghiogheny River to a terminus in the coke region at New Haven, and also from McKeesport up the east side of the Monongahela River to a terminus at or near Fayette City, all in the State of Pennsylvania; and The Pennsylvania Railroad Company, as lessee, controls the railroads of the Pittsburgh, Virginia and Charleston Railway Company, extending from Pittsburg to West Brownsville up the west side of the Monongahela River, and to Brownsville and Redstone Junction via its Redstone and Brownsville Branches, and of the South West Pennsylvania Railway Company, extending from Greensburg to Uniontown, and thence by a new extension to the Monongahela River, all in the State of Pennsylvania.

And Whereas, Both the Pittsburgh, Virginia and Charleston Railway Company and The Pittsburg, McKeesport and Youghiogheny Railroad Company have under contemplation extending their lines south of said termini at Fayette City, Brownsville and West Brownsville to the line dividing the States of Pennsylvania and West Virginia, both companies having done work and contracted expenses in this direction;

And Whereas, The said South West Pennsylvania Railway Company has completed an extension and branch lines from at or near Uniontown, Pa., in a southerly direction to a connection with the extension of said Pittsburgh, Virginia and Charleston Railway at mouth of Brown's Run, on Monongahela River, and also connecting with the railroad of the Masontown and New Salem Railroad Company, controlled by the Federal Steel Company, which railroad will be operated by The Pennsylvania Railroad Company for account of the owners;

And Whereas, The Pittsburgh, Virginia and Charleston Railway Company, chartered to construct a road to West Virginia, was originally, and is now, authorized to extend its railroad from its termini at Brownsville and West Brownsville, via the Monongahela River, to the West Virginia State Line, and has surveyed and located its lines, first, from West Brownsville, along the west bank of said river, to said West Virginia State Line; and, second, diverging from a point upon the west side of the river about four (4) miles south of West Brownsville and crossing the Monongahela River at Crawford's Bend; thence along the east side of said river to a second crossing of same at a point south of New Geneva; thence along the west side of the Monongahela River to the West Virginia State Line; and said company has secured rights of way between Brownsville and Adah Run and has completed portions of its railroad, to wit, between Adah Run and Brown's Run, a distance of one and seven-tenths (1.7) miles, and between Brown's Run and Cat's Run, a distance of four and one-tenth (4.1) miles, together with branches from said completed line extending eastwardly up Middle Run two and ninety-seven one hundredths (2.97) miles, and up Cat's Run one and nineteen one hundredths (1.19) miles, to accommodate certain coal and coke developments, which said portions of said line are connected at the mouth of Brown's Run with the said extensions of the South West Pennsylvania Railway from Uniontown;

And Whereas, The proposed extension of the railroad of The Pittsburgh, McKeesport and Youghiogheny Railroad Company is intended to reach substantially the same territory and transport same traffic as the proposed extension of the Pittsburgh, Virginia and Charleston Railway, and since it has been agreed that one line of railway will be sufficient to care for all the traffic originating in said territory, The Pittsburgh, McKeesport and Youghiogheny Railroad Company intends to extend its line only from Fayette City to a junction with the Redstone Branch of the said Pittsburgh, Virginia and Charleston Railway and also with the new railway to be constructed as herein provided;

And Whereas, It has been agreed that all extensions from Redstone Junction, Brownsville, and West Brownsville to the State Line, together with said Middle Run, Brownsville, and Cat's Run Branches of the Pittsburgh, Virginia and Charleston Railway, and the Mosier Run Branch and Brown's Run extension, from Mosier Run to Monongahela River, of the South West Pennsylvania Railway, should be owned and controlled jointly by the parties hereto, and after completion operated in their interest, and to that end a new railroad company, known as "The Monongahela Railroad Company," has been formed for the purpose aforesaid, and in what the parties hereto have equal interest;

And Whereas, The said The Monongahela Railroad Company has acquired, at the cost thereof ($519,696.52), and is now in possession of the following:

	At cost of—
Acquired by purchase from the Pittsburgh, Virginia and Charleston Railway Company:	
The rights of way between Brownsville and Adah Run, 19.00 miles..	$15, 680. 00
The completed road between Adah Run and Cat's Run, 5.80 miles..	227, 779. 06
The Middle Run Branch, 2.97 miles	71, 186. 79
The Cat's Run Branch, 1.19 miles	20, 107. 17
From Redstone Junction to Brownsville being the Brownsville Branch of the Pittsburgh, Virginia and Charleston Railway Company, valuation estimated at $60,000, and agreed upon, 1.10 miles	60, 000. 00
Making total acquired from the Pittsburgh, Virginia and Charleston Railway Company, 30.06 miles, and the total amount to be paid the Pittsburgh, Virginia and Charleston Railway Company	394, 753.
Acquired by purchase from the South West Pennsylvania Railway Company:	
The completed railroad from Edenborn to Mosier Run Junction and from said junction to the extension of the Pittsburgh, Virginia and Charleston Railway at the mouth of Brown's Run (now called Huron Station), 3.39 miles	124, 943.
Making a total mileage acquired, 33.45.	
Representing an expenditure of	519, 696.

Now, therefore, In consideration of the premises and of the sum of one dollar by each of the parties hereto to the other in hand paid, the receipt of which is hereby acknowledged, the parties hereto do mutually covenant and agree as follows:

First. The Monongahela Railroad Company having acquired from the Pittsburgh, Virginia and Charleston Railway Company, The Pittsburg, McKeesport and Youghiogheny Railroad Company and the South West Pennsylvania Railway Company, all their rights of way, right of way maps, contracts, and everything else, except the corporate franchises, pertaining to said extensions of their lines and to said branch lines at the cost price thereof to them, it, the said The Monongahela Railroad Company, shall, without delay, proceed to construct its railroad over the following route, viz:—From a point on the extension of the Pittsburg, McKeesport and Youghiogheny Railroad, on the east bank of the Monongahela River, about six hundred (600) feet northeast from the east abutment of the "Redstone Bridge" over the Monongahela River; thence south, occupying and using the line of the Brownsville Branch purchased from the Pittsburgh, Virginia and Charleston Railway Company, to and through Brownsville and Bridgeport; thence continuing along the east bank of the Monongahela River to Adah Run; whereat connection will be made with the completed acquired lines from Adah Run to Cat's Run, Middle Run and Cat's Run Branches, and Brown's Run extension and Mosier Run Branch; and the said The Monongahela Railroad Company will extend its main line on up said river to West Virginia State Line as and when the same may from time to time be authorized by itsDirectors.

Second. That as and when the said The Monongahela Railroad Company completes its railroad, it shall be operated, together with said branches, by its own management for the interests of the parties hereto, each party hereto to nominate one-half of the Board of Directors, and the President of said company, or the operating officer in charge of its property, to be elected annually by agreement between the Presidents of The Pittsburg and Lake Erie Railroad Company and The Pennsylvania Railroad Company, and such other further provisions shall be made as to the management, operation, and use thereof as will best promote the interests of the parties hereto, and secure for The Monongahela Railroad Company such rates of transportation as will enable it to make a fair return on the capital invested therein.

Third. That if either of the parties of the first part or second part hereto desires at any time to construct, operate and control any extension, or extensions, or branches of the railroad of said The Monongahela Railroad Company within the State of Pennsylvania, and connect the same with its road, or acquire, by lease, purchase or otherwise, the line of any other railroad within the territory in southwestern Pennsylvania covered by this Agreement, connecting with said The Monongahela Railroad Company's road, or any of its extensions or branches, in the construction, acquisition or use of which the other party does not wish to join, the same may nevertheless be constructed as branches or extensions of said The Monongahela Railroad Company, or be acquired or purchased by said last-named company, and the cost thereof may be paid for primarily by securities to be issued by said The Monongahela Railroad Company, secured only by lien upon such extensions or branches, and the party so desiring the same shall negotiate the securities issued therefor, and raise the money that may be needed for such construction or acquisition, and pay the interest and principal of such securities and all cost and expense incident to the maintenance and operation of such extensions or branches, and have the exclusive right to operate and use such extensions and branches and shall bear the loss or receive the profit that may be incurred or arise in such exclusive maintenance and operation thereof, and shall, as between the parties hereto, be deemed the exclusive owner of such extensions, branches or acquired line.

But it is further agreed, That if the other party to this Agreement shall desire to participate in the benefits arising from the operation or use of any such branches, extensions or acquired line, it shall have the right, and be permitted to do so, upon reimbursing and paying one-half of the cost thereof to the party which constructed or acquired the same, and thereupon and thereafter such extension, branch or acquired line shall be operated and maintained as, and shall be and become, a part of the system and property of said The Monongahela Railroad Company, and said company shall assume all obligations pertaining thereto.

Provided, however, That the election by such party to so participate and the payment of said one-half of the cost of such extension, branch, or acquired line shall be made before the expiration of two (2) years after it shall have notice in writing from the other party that it has constructed such extension or branch, or acquired such connecting line, and is operating the same.

The said The Monongahela Railroad Company shall do all things requisite for the legal adoption, location and construction of such branches or extensions, or for the acquisition of such connecting lines.

Fourth. The Monongahela Railroad Company shall receive fair and reasonable divisions of all joint rates upon traffic interchanged between its railway and the railways of the other parties hereto, and should either party hereto at any time desire to move traffic with its own locomotives and cars over the railway of The Monongahela Railroad Company, or any branches owned or controlled by it, it shall have the right to do so, and it shall be reimbursed by The Monongahela Railroad Company out of the rates accruing to it upon such traffic for the reasonable cost of furnishing such train service; and if the proportion of joint rates to be allowed to The Monongahela Railroad Company, or the allowance to be made for train service can not be agreed upon by the parties hereto, the same shall be determined from time to time by a disinterested arbitrator to be elected by the parties hereto.

Upon the request of either of the parties hereto, the Monongahela Railroad Company shall connect, or permit the connection of, its tracks with the tracks of any other railroad company.

Fifth. It is mutually covenanted and agreed that none of the parties hereto will independently promote, or cause to be promoted, construct, acquire, or in anywise be interested in the construction or acquisition of any railroad, branch, or extension within the territory covered by this agreement, except as is herein provided and on the terms hereof.

Sixth. The New York Central and Hudson River Railroad Company (the owner of the majority of the stock of The Lake Shore and Michigan Southern Railway Company, which company owns the majority of the stock of the Pittsburg and Lake Erie Railroad Company, which company controls, by lease, the railroad of The Pittsburg, McKeesport and Youghiogheny Railroad Company), hereby approves the foregoing Agreement, and stipulates, covenants, and agrees, in so far as it legally and properly can, to cause the same to be observed and enforced and has caused these presents to be duly executed.

Seventh. The Pennsylvania Railroad Company, one of the parties hereto, as the owner of the majority of the stock of the said Pittsburgh, Virginia and Charleston Railway Company and the said South West Pennsylvania Railway Company, stipulates, covenants, and agrees, in so far as it can, to cause this Agreement to be observed and enforced.

The Pittsburg and Lake Erie Railroad Company and The Pittsburg, McKeesport and Youghiogheny Railroad Company do hereby each constitute and appoint James M. Schoonmaker to be the attorney for each of said companies, and in the name, and as and for the corporate act and deed of each of said companies, respectively, to acknowledge this agreement before any person having authority, by the laws of the Commonwealth of Pennsylvania, to take such acknowledgment, to the intent that the same may be duly recorded;

And The Pennsylvania Railroad Company, the Pittsburgh, Virginia and Charleston Railway Company and the South West Pennsylvania Railway Company do each likewise hereby constitute and appoint Samuel Rea to be the Attorney for each of said last named companies, and in the name, and as and for the corporate act and deed of each of said companies, respectively, to acknowledge this agreement before any person having authority, by the laws of the Commonwealth of Pennsylvania, to take such acknowledgment, to the intent that the same may be duly recorded.

In Witness Whereof, The said parties hereto have hereunto affixed their respective corporate seals, duly attested, the day and year first above written.

Signed, sealed and delivered in the presence of:

THE PITTSBURGH AND LAKE ERIE RAILROAD COMPANY,
By J. M. SCHOONMAKER, *Vice-President.*
B. C. VAUGHN.
[Corporate Seal of The Pittsburg and Lake Erie Railroad Company.]
Attest:
JNO. G. ROBINSON, *Secretary.*

THE PITTSBURG, MCKEESPORT AND YOUGHIOGHENY RAILROAD COMPANY,
By J. M. SCHOONMAKER, *President.*
B. C. VAUGHN.
[Corporate Seal of The Pittsburg, McKeesport and Youghiogheny Railroad Company.]
Attest:
JNO. G. ROBINSON, *Secretary.*

THE PENNSYLVANIA RAILROAD COMPANY,
By JNO. P. GREEN, *Vice-President.*
A. J. COUNTY.
[Corporate Seal of the Pennsylvania Railroad Company.]
Attest:
LEWIS NEILSON, *Secretary.*

PITTSBURGH, VIRGINIA AND CHARLESTON RAILWAY COMPANY,
By SAM'L REA, *President.*
A. J. COUNTY.
[Corporate Seal of Pittsburgh, Virginia and Charleston Railway Company.]
Attest:
F. W. SCHWARZ, *Secretary.*

SOUTH WEST PENNSYLVANIA RAILWAY COMPANY,
By CHAS. E. PUGH, *President.*
A. J. COUNTY.
Attest:
ALBERT NEWSON, *Secretary.*
[Corporate Seal of South West Pennsylvania Railway Company.]

The New York Central and Hudson River Railroad Company and The Lake Shore and Michigan Southern Railway Company do each hereby declare and agree that the foregoing Agreement has been made with their assent, and, as provided by the Sixth Article thereof, they do, respectively, hereby stipulate, covenant and agree, in so far as they legally and properly can, to cause the same to be fully and faithfully observed, enforced and performed.

Witness the respective corporate seals of said companies, hereto affixed, and duly attested, this twelfth day of December, A. D. 1901.

Signed, sealed and delivered in the presence of:

THE NEW YORK CENTRAL AND HUDSON RIVER RAILROAD COMPANY,
By W. H. NEWMAN, *President.*
D. W. PARDEE.
Attest:
E. D. WORCESTER, *Secretary.*
[Corporate Seal of The New York Central and Hudson River Railroad Company.]
N. Y. C. Board Dec. 12/01.

THE LAKE SHORE AND MICHIGAN SOUTHERN RAILWAY COMPANY,
By W. H. NEWMAN, *President.*
D. W. PARDEE.
Attest:
E. D. WORCESTER, *Secretary.*
[Corporate seal of the Lake Shore and Michigan Southern Railway Company.]
L. S. Board Dec. 12/01.

Agreement dated June 22, 1904.

This Agreement made this twenty-second day of June in the year of our Lord one thousand nine hundred and four (A. D. 1904) by and between the Pittsburgh and Lake Erie Railroad Company, for itself and as lessee of the Pittsburgh, McKeesport and Youghiogheny Railroad Company, and the Pittsburgh, McKeesport and Youghiogheny Railroad Company, parties of the first part, and The Pennsylvania Railroad Company, for itself and as lessee of the Pittsburgh, Virginia and Charleston Railway Company and the South West Pennsylvania Railway Company, and the Pittsburgh, Virginia and Charleston Railway Company, and the South West Pennsylvania Railway Company, parties of the second part;

Witnesseth, that the said parties hereby amend and modify the Fourth paragraph of the agreement between them, bearing date the twenty-second day of November in the year of our Lord one thousand nine hundred and one, so that it shall read as follows, such modification and amendment to take effect as of the thirty-first day of August in the year of our Lord one thousand nine hundred and three:

Fourth. The Monongahela Railroad Company shall receive fair and reasonable divisions of all joint rates upon traffic interchanged between its railway and the railways of the other parties hereto, and should either party hereto at any time desire to move traffic with its own locomotives and cars over the railway of The Monongahela Railroad Company, or any branches owned or controlled by it, it shall have the right to do so, and it shall be reimbursed by The Monongahela Railroad Company out of the rates accruing to it upon such traffic for the reasonable cost of furnishing such train service; and if the proportion of joint rates to be allowed to The Monongahela Railroad Company, or the allowance to be made for train service cannot be agreed upon by the parties hereto, the same shall be determined from time to time by a disinterested arbitrator to be selected by the parties hereto.

So far, however, as relates to the portion of the Monongahela Railroad between Brownsville Junction and Brownsville (at which latter place the Pittsburgh and Lake Erie Railroad Company and the Pennsylvania Railroad Company have, with the approval of the other parties hereto, established a passenger and freight agency as a terminal point for their respective lines) it is understood and agreed by and between the parties hereto as follows:

(a) That the Pittsburgh and Lake Erie Railroad Company and The Pennsylvania Railroad Company shall retain all the earnings from the traffic moved in their respective trains originating at, and destined to, Brownsville.

(b) That the cost of the maintenance of the portion of the Monongahela Railroad between Brownsville Junction and Brownsville shall be apportioned between the Pittsburgh and Lake Erie Railroad Company, The Pennsylvania Railroad Company and The Monongahela Railroad Company, in accordance with the relative proportion which the car and engine mileage of each road bears to the total car and engine mileage over that portion of said railroad; the distance to be computed as one mile.

(c) The Agency expenses at Brownsville, including current repairs to station buildings, platforms, etc., shall be divided between the Pittsburgh and Lake Erie Railroad Company, The Pennsylvania Railroad Company and The Monongahela Railroad Company on the following basis:

The passenger expenses shall be apportioned in accordance with the relative proportion which the number of tickets sold at Brownsville Passenger Station for each road bears to the total number of tickets sold at that station for the three roads named;

The freight expenses shall be apportioned in accordance with the relative proportion which the tonnage billed to and from Brownsville for each road bears to the total tonnage billed to and from that point for the three roads named.

(d) The expenses of shifting between Brownsville and Brownsville Junction and the salaries of the interchange clerks at Brownsville Junction shall be charged one-third each to the Pittsburgh and Lake Erie Railroad Company, the Pennsylvania Railroad Company and the Monongahela Railroad Company.

Upon the request of either of the parties hereto, The Monongahela Railroad Company shall connect, or permit the connection of, its tracks with the tracks of any other railroad company.

The Pittsburgh and Lake Erie Railroad Company and the Pittsburgh, McKeesport and Youghiogheny Railroad Company do hereby each constitute and appoint Jno. G. Robinson to be the attorney for each of said companies, and in the name, and as for the corporate act and deed of each of said companies, respectively, to acknowledge this agreement before any person having authority, by the laws of the Commonwealth of Pennsylvania, to take such acknowledgment, to the intent that the same may be duly recorded;

And The Pennsylvania Railroad Company, the Pittsburgh, Virginia and Charleston Railway Company the The South West Pennsylvania Railway Company do each likewise hereby constitute and appoint Lewis Neilson to be the attorney for each of said last-named companies, and in the name, and as and for the corporate act and deed of each of said companies, respectively, to acknowledge this agreement before any person having authority, by the laws of the Commonwealth of Pennsylvania, to take such acknowledgment, to the intent that the same may be duly recorded.

In Witness Whereof, the said parties hereto have caused their respective corporate seals to be hereunto affixed, duly attested, the day and year first hereinbefore written.

Signed, sealed and delivered in the presence of:

Attest:

PITTSBURGH AND LAKE ERIE RAILROAD COMPANY,
By J. M. SCHOONMAKER, *Vice-President.*

JNO. G. ROBINSON, *Secretary.*

[Seal Pittsburgh and Lake Erie Railroad company.]

PITTSBURGH, MCKEESPORT AND YOUGHIOGHENY RAILROAD COMPANY,
By J. M. SCHOONMAKER, *President.*

Attest:

JNO. G. ROBINSON, *Secretary.*

[Seal Pittsburgh, McKeesport and Youghiogheny Railroad Company.]

THE PENNSYLVANIA RAILROAD COMPANY,
By S. M. PREVOST, *Third Vice-President.*

Attest:

LEWIS NEILSON, *Secretary.*

[Seal The Pennsylvania Railroad Company.]

PITTSBURGH, VIRGINIA AND CHARLESTON RAILWAY COMPANY,
By W. H. BARNES, *Vice-President.*

Attest:

F. W. SCHWARZ, *Secretary.*

[Seal Pittsburgh, Virginia and Charleston Railway Company.]

SOUTH WEST PENNSYLVANIA RAILWAY COMPANY,
By CHAS. E. PUGH, *President.*

Attest:

F. W. SCHWARZ, *Secretary.*

[Seal The South West Pennsylvania Railway Company.]

The Monongahela Railroad Company, the corporation named in the foregoing agreement, and also in the agreement bearing date the twenty-second day of November in the year of our Lord one thousand nine hundred and one therein recited, hereby assents to both agreements with like effect as if it had been named in and executed the same as a party thereto.

The Monongahela Railroad Company does hereby constitute and appoint J. M. Schoonmaker to be its attorney for it, and in its name, and as and for its corporate act and deed, to acknowledge this agreement before any person having authority by the laws of the Commonwealth of Pennsylvania to take such acknowledgment to the intent that the same may be duly recorded.

In Witness Whereof, the said The Monongahela Railroad Company has caused its corporate seal to be hereunto affixed, duly attested, this 14th day of July, A. D. 1904.

Signed, sealed and delivered in the presence of:

THE MONONGAHELA RAILROAD COMPANY,
By J. M. SCHOONMAKER, *President*.

Attest:

F. W. SCHWARZ, *Secretary*.

[Seal The Monongahela Railroad Company.]

The New York Central and Hudson River Railroad Company and the Lake Shore and Michigan Southern Railway Company do each hereby declare and agree that the foregoing agreement has been made with their assent, and do respectively hereby stipulate, covenant and agree, in so far as they legally and properly can, to cause the same to be fully and faithfully observed, enforced and performed.

In Witness Whereof, the said New York Central and Hudson River Railroad Company and the said Lake Shore and Michigan Southern Railway Company have caused their respective corporate seals to be hereunto affixed, duly attested, this ninth day of July, A. D. 1904.

Signed, sealed and delivered in the presence of:

NEW YORK CENTRAL AND HUDSON RIVER RAILROAD COMPANY,
By W. H. NEWMAN, *President*.

Attest:

D. W. PARDEE, *Secretary*.

[Seal New York Central and Hudson River Railroad Company.]

LAKE SHORE AND MICHIGAN SOUTHERN RAILWAY COMPANY,
By W. H. NEWMAN, *President*.

Attest:

D. W. PARDEE, *Secretary*.

[Seal Lake Shore and Michigan Southern Railway Company.]

Agreement dated May 8, 1911.

This Agreement, made this eighth day of May, A. D. 1911, by and between the Pittsburgh and Lake Erie Railroad Company, for itself and as lessee of the Pittsburgh, McKeesport and Youghiogheny Railroad Company, and the Pittsburgh, McKeesport and Youghiogheny Railroad Company, parties of the first part, and The Pennsylvania Railroad Company, for itself and as the successor; by acquisition, of the Pittsburgh, Virginia and Charleston Railway Company and the South West Pennsylvania Railway Company, party of the second part;

Witnesseth, that the parties hereto hereby amend and modify Section "(d)" of paragraph "Fourth" of the agreement of November 22, 1901, as supplemented and amended by agreement bearing date June 22, 1904, for the management and operation of the Monongahela Railroad, so that said Section shall read as follows; such amendment and modification to take effect as of January 1, 1911:

"(d) The salaries of interchange clerks, yard masters at Brownsville Junction, and switchmen or flagmen at Dunlap's Creek Junction shall be charged one-third each to the Pittsburgh and Lake Erie Railroad, The Pennsylvania Railroad, and The Monongahela Railroad Companies.

"The expenses of shifting between Brownsville and Brownsville Junction shall include engine rental, cost of engine repairs, fuel and supplies, the proportion of wages of enginehousemen and the wages of general yardmasters and switching crews, with twelve percentum (12%) added to cost of general yardmaster and switching crews for superintendence, apportioned to Brownsville Terminal on basis of time consumed by yard crews, in the terminal, against total time consumed by yard crews, shall be charged to each of the three Companies named, on basis of loaded and empty cars handled in the terminal."

The Pittsburgh and Lake Erie Railroad Company and the Pittsburgh, McKeesport and Youghiogheny Railroad Company do hereby each constitute and appoint J. G. Robinson to be the attorney for each of the said Companies, and in the name, and as and for the corporate act and deed of each of said Companies, respectively, to acknowledge this agreement before any person having authority by the laws of the Commonwealth of Pennsylvania to take such acknowledgment, to the intent that the same may be duly recorded.

The Pennsylvania Railroad Company doth hereby constitute and appoint Robt. H. Groff to be its attorney for it, and in its name, and as and for its corporate act and deed, to acknowledge this agreement before any person having authority by the laws of the Commonwealth of Pennsylvania to take such acknowledgment, to the intent that the same may be duly recorded.

In Witness Whereof, the said parties hereto have caused their respective corporate seals to be hereunto affixed, duly attested, the day and year first hereinbefore written.

Signed, sealed and delivered in the presence of:

PITTSBURGH AND LAKE ERIE RAILROAD COMPANY,
By J. M. SCHOONMAKER, *Vice-President.*
Attest:
JNO. G. ROBINSON, *Assistant Secretary.*
[Seal Pittsburgh & Lake Erie Railroad Co.]

PITTSBURGH, MCKEESPORT AND YOUGHIOGHENY RAILROAD COMPANY,
By J. M. SCHOONMAKER, *President.*
Attest:
JNO. G. ROBINSON, *Secretary.*

[Sea lPittsburgh, McKeesport & Youghiogheny Railroad Co.]

THE PENNSYLVANIA RAILROAD COMPANY,
By W. W. ATTERBURY, *Fourth Vice-President.*
Attest:
ROBT. H. GROFF, *Assistant Secretary.*
[Seal The Pennsylvania Railroad Company.]

The Monongahela Railroad Company, the corporation named in the foregoing agreement, and also in the agreement bearing date November 22, 1901, as supplemented and amended by agreement of June 22, 1904, therein recited, hereby assents to the terms and conditions therein contained with like effect as if it had been named in and executed the same as a party thereto.

The Monongahela Railroad Company does hereby constitute and appoint Robt. H. Groff to be its attorney for it, and in its name, and as and for its corporate act and deed, to acknowledge this agreement before any person having authority by the laws of the Commonwealth of Pennsylvania to take such acknowledgment to the intent that the same may be duly recorded.

In Witness Whereof, the said The Monongahela Railroad Company has caused its corporate seal to be hereunto affixed, duly attested, this 29th day of May, A. D. 1911.

Signed, sealed and delivered in the presence of:

THE MONONGAHELA RAILROAD COMPANY,
By JOSEPH WOOD, *Vice-President.*

Attest:
ROBT. H. GROFF, *Assistant Secretary.*

[Seal The Monongahela Railroad Company.]

The New York Central and Hudson River Railroad Company and the Lake Shore and Michigan Southern Railway Company do each hereby declare and agree that the foregoing agreement has been made with their assent, and do respectively hereby stipulate, covenant and agree, in so far as they legally and properly can, to cause the same to be fully and faithfully observed, enforced and performed.

In Witness Whereof, the said New York Central and Hudson River Railroad Company and the said Lake Shore and Michigan Southern Railway Company have caused their respective corporate seals to be hereunto affixed, duly attested, this 29th day of May, A. D. 1911.

Signed, sealed and delivered in the presence of:

NEW YORK CENTRAL AND HUDSON RIVER RAILROAD COMPANY,
By W. C. BROWN, *President.*

Attest:
D. W. PARDEE, *Secretary.*

[Seal New York Central & Hudson River Railroad Company.]

LAKE SHORE AND MICHIGAN SOUTHERN RAILWAY COMPANY,
By W. C. BROWN.

Attest:
D. W. PARDEE, *Secretary.*

[Seal Lake Shore & Michigan Southern Railway Co.]

APPENDIX No. 12.

AGREEMENT OF CONSOLIDATION OF MONONGAHELA RAILROAD COMPANY AND BUCKHANNON & NORTHERN RAILROAD COMPANY.

[Copy of instrument dated November 24, 1914.]

WHEREAS the Monongahela Railroad Company is a corporation duly created and organized under the laws of Pennsylvania, and is the owner of a main line of railroad constructed and in operation from Brownsville Junction, Pennsylvania, along the east side of the Monongahela River to a point eight-tenths (.8) of a mile south of Georges Creek, and thence branching across the said river and along the west side of same to the Pennsylvania-West Virginia State Line, a distance of thirty-six and six hundred forty-five thousandths (36.645) miles; and is the owner of a branch railroad constructed and in operation from a point of connection with the main line of the Monongahela Railroad at Middle Run Junction northeastwardly to Lambert, a distance of three and twenty-three hundredths (3.23) miles; also, of a branch railroad constructed and in operation from a point of connection with the said main line at Huron, via Moser Run Junction, to Edenborn, a distance of three and sixty-seven hundredths (3.67) miles; also, of a branch railroad constructed and in operation from a point of connection with the said main line at Gray's Landing to Ifield, a distance of one and nine hundredths (1.09) miles; also, of a branch railroad constructed and in operation from a point of connection with the said main line at a point twenty-two hundred (2200) feet south of Alicia Station and extending southwardly up the valley of Rush Run three (3) miles, thence westwardly one and twenty-five hundredths (1.25) miles, being a total distance of four and twenty-five hundredths (4.25) miles; also of a branch railroad constructed and in operation from a point of connection with the Connellsville and Monongahela Railway at a point six hundred (600) feet south of Parshall Station and extending northwardly a distance of seventy-four hundredths (.74) of a mile; also, of a branch railroad constructed and in operation from a point of connection with the said main line at Dunlaps Creek Junction to a point of connection with the Connellsville & Monongahela Railway, a distance of thirteen hundredths (.13) of a mile; being a total mileage of main line and branches of forty-nine and seven hundred fifty-five thousandths (49.755) miles; and

WHEREAS, the Buckhannon & Northern Railroad Company is a corporation duly created and organized under the laws of West Virginia for the purpose of constructing and operating a railroad in the said state; and is the owner of a railroad, known as the State Line Extension, constructed and to be constructed from a point on the Pennsylvania-West Virginia State Line on the west bank of the Monongahela River up and along the west bank of the said river near Rivesville, West Virginia, a distance of thirty and three tenths (30.3) miles; and also, of a branch railroad, known as Pricketts' Creek Branch, being constructed from a point on the west side of the Monongahela River near Catawba and thence crossing the said river and following Prickett's Creek to a point in Fairmont on the east side of the said river, a distance of seven (7) miles; and is also the owner of certain main, branch and extension lines of railroad, and the franchises, locations and certain rights of way therefor and improvements thereon; and

WHEREAS, the railroads of the Monongahela Railroad Company and the Buckhannon & Northern Railroad Company are not parallel or competing, and the railroad of the Monongahela Railroad Company joins and unites with the railroad of the Buckhannon & Northern Railroad Company at the Pennsylvania-West Virginia State Line in such a manner as to form with each other a continuous and through line of railroad for the transportation of persons and property; and

WHEREAS, the interests of the several companies will be promoted, and their ability to perform their duty to the public as common carriers will be increased by a merger and consolidation of the capital stock, franchises, railroads and properties of the said two companies into one new consolidated company; and

WHEREAS, such merger and consolidation is authorized by the laws of the several states in which the said railroads are respectively situated, and from which they respectively derive their corporate powers;

THEREFORE, THE DIRECTORS OF THE SAID several companies, acting in pursuance of resolutions duly adopted by them, respectively, and subject to ratification by the stockholders of the said several companies, as required by law, do hereby enter into the following joint agreement in respect to such merger and consolidation:

First: The capital stock, franchises, railroads, and estates, real, personal and mixed, of the said Monongahela Railroad Company and the said Buckhannon & Northern Railroad Company shall be and they are hereby united, merged and consolidated, to be hereafter known, owned and controlled or operated as and by one railroad company.

Second: The name of the said Company shall be *The Monongahela Railway Company*.

Third: The directors of the said company, including the President, shall be eight in number, and the officers shall consist of a President, a Vice-President, a Secretary and a Treasurer.

Fourth: The following are the names and places of residence of the first directors of the said company:

J. J. Turner, Pittsburgh, Pa.; J. M. Schoonmaker, Pittsburgh, Pa.; W. K. Vanderbilt, Jr., New York, N. Y.; A. H. Smith, New York, N. Y.; C. F. Daly, New York, N. Y.; A. J. County, Philadelphia, Pa.; W. W. Atterbury, Philadelphia, Pa.; Samuel Rea, Philadelphia, Pa.

The following are the names and places of residence of the first officers of the said company:

J. J. Turner, President, Pittsburgh, Pa.; J. M. Schoonmaker, Vice-President, Pittsburgh, Pa.; Lewis Neilson, Secretary, Philadelphia, Pa.; John G. Robinson, Treasurer, Pittsburgh, Pa.

Fifth: The annual meeting of the stockholders shall be held at the principal office of the Company on the first Tuesday in May of each year; at which time the President and the Directors shall be elected by ballot, and the other officers shall be chosen by the Directors as soon thereafter as possible; but the time and place of holding the annual meeting may be changed from time to time by the stockholders at any regular annual meeting.

Sixth: The capital stock of the said company shall be $10,000,000.00, consisting of 200,000 shares of the par value of $50.00 each.

Seventh: The capital stock of the new company shall be issued as follows:

1. To the holders of outstanding stock of Monongahela Railroad Company, there shall be issued one share of stock in the new Company for each share of stock in the old company	$1,428,000.00
2. To the holders of stock of the Monongahela Railroad Company, there shall be issued at par, stock in the new Company for Additions and Betterments heretofore paid for out of current funds to amount of	1,925,000.00
3. To the holders of outstanding stock of the Buckhannon & Northern Railroad Company, there shall be issued two shares of stock (par $50.00) for each share of the old stock (par $100.00)	4,000.00
4. To be issued in payment (par for par) of promissory notes given by the Buckhannon & Northern Railroad Company for cash borrowed from time to time, for construction of the railroad	1,643,000.00
The remainder of the authorized capital stock of the new company to be issued by the Directors for corporate purposes as they may from time to time determine	5,000,000.00
Total authorized issue	10,000,000.00

Eighth: In order to effectuate the said consolidation and merger under the laws of West Virginia, the Buckhannon & Northern Railroad Company agrees to make, execute, acknowledge and deliver to the said The Monongahela Railway Company, its successors and assigns, all deeds, conveyances, assignments and other assurances necessary to sell, convey, transfer, assign and set over to the said The Monongahela Railway Company, its successors and assigns, all the railroads, properties, assets and franchises owned by the said Buckhannon & Northern Railroad Company, or to which it may hereafter become entitled.

Ninth: The principal office of the said Company shall be in Philadelphia, Pennsylvania, unless the location thereof shall be changed according to law.

IN WITNESS WHEREOF, the said two corporations, parties hereto, have caused their respective common or corporate seals to be hereunto affixed, and duly attested, and these presents to be signed by a majority of the Directors of each, and the other original of this agreement to be executed in like manner, this *24th* day of *November*, A. D. 1914.

The Monongahela Railroad Company,
By J. J. Turner, *President.*

Attest:

Lewis Heilson, *Secretary.*

Samuel Rea,
J. J. Turner,
A. H. Smith,
J. M. Schoonmaker,
W. W. Atterbury,
A. J. County,
Directors The Monongahela Railroad Company.

The Buckhannon & Northern Railroad Company,
By J. N. Schoonmaker, *President.*

Attest:

J. T. Blair, *Secretary.*

J. J. Turner,
J. N. Schoonmaker,
Samuel D. Brady,
C. M. South,
J. T. Blair,
Directors The Buckhannon & Northern Railroad Company.

I HEREBY CERTIFY that a special meeting of the Stockholders of The Monongahela Railroad Company was held on Monday, 28th December, 1914, and that, at the said meeting, a ballot having been taken, the above and foregoing agreement was approved by the vote of more than two-thirds of all the stock of this Company.

Attest:

(Signed) Lewis Neilson, *Secretary.* [seal]

I HEREBY CERTIFY THAT a special meeting of the stockholders of the Buckhannon & Northern Railroad Company was held at the office of the Company in Fairmont, West Virginia, on Monday, 28th December, 1914, and that, at the said meeting, a ballot having been taken, the above and foregoing agreement was approved by the vote of the entire capital stock of the Buckhannon & Northern Railroad Company.

Attest:

(Signed) J. T. Blair, *Secretary.* [seal]

APPENDIX No. 13.

STATEMENT OF O. E. KENNEDY, AUDITOR OF LITTLE KANAWHA SYNDICATE LINES, SHOWING INVESTMENT IN PROPERTIES.

[Copy of statement dated November 27, 1914.]

Statement showing entire investment in Little Kanawha syndicate properties, Greene County syndicate property, Fairmont & Southern Railroad, and State Line & Southern Railroad Co.'s as of June 30, 1914.

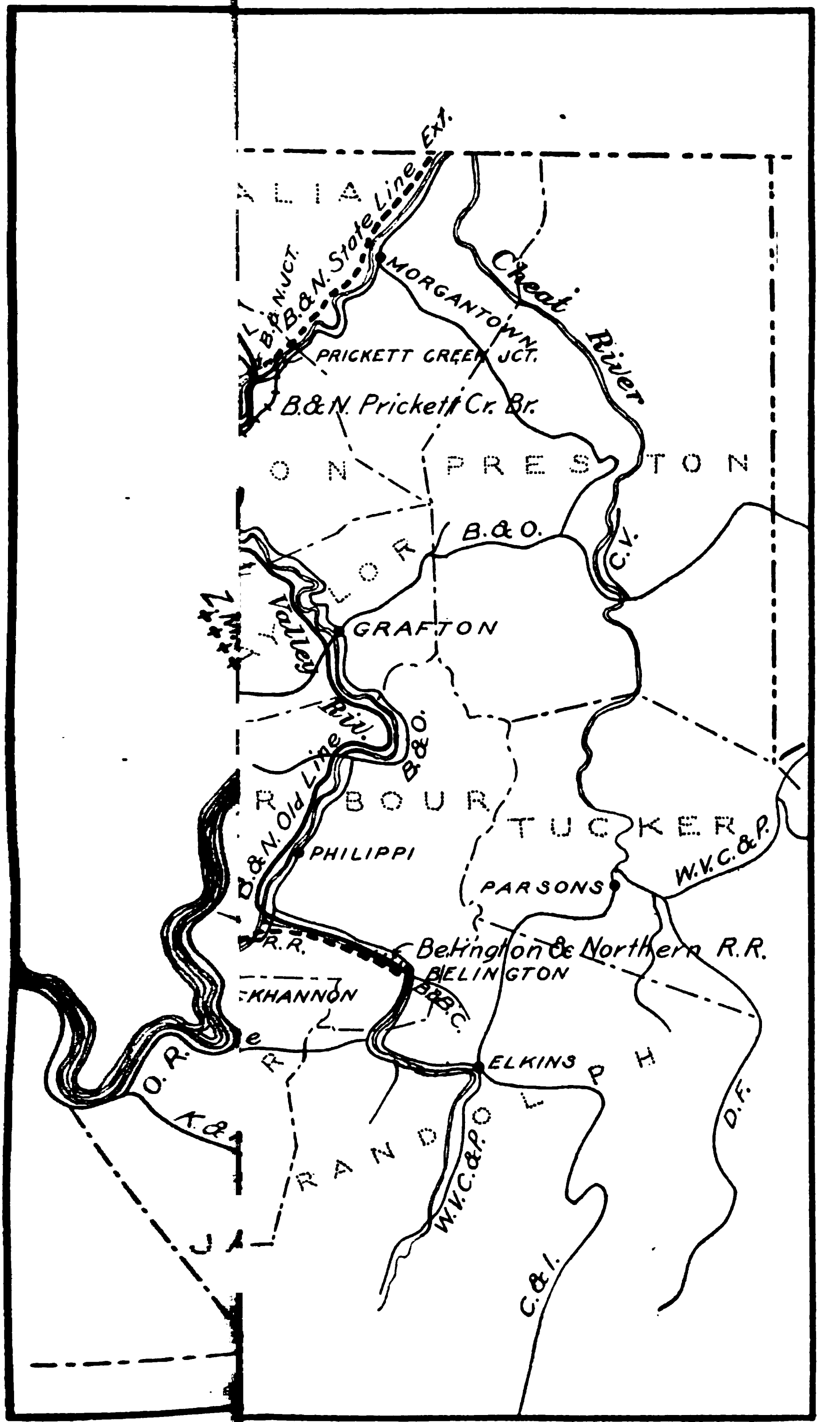
Accounts.	Account syndicate.	Account purchasers.	Total.
Stock:			
Little Kanawha Railroad Co	$357,594.87	$60,000.00	$417,594.87
Belington & Northern Railroad Co	225,000.00		225,000.00
Buckhannon & Northern Railroad Co	150,020.00		150,020.00
Marietta, Columbus & Cleveland R. R. Co. (Reverted to bondholders—See Profit & Loss Account).			
Greene County Railroad Co		225,000.00	225,000.00
Advances for operation:			
Little Kanawha Railroad Co		110,624.85	110,624.85
Belington & Northern Railroad Co	518.79	16,674.56	17,193.35
Marietta, Columbus & Cleveland R. R. Co. (Reverted to bondholders—See Profit & Loss Account).			
Advances for construction:			
Little Kanawha R. R.—Eastern Extension	406,050.40	23,000.86	429,051.26
Zanesville, Marietta & Parkersburg R. R. Co	877,894.68	*6,349.65*	871,545.03
Parkersburg Bridge & Terminal R. R. Co	94,483.92	4,903.24	99,387.16
Burnsville & Eastern Railroad Co	38,806.25	10,314.02	49,120.27
Buckhannon & Northern Railroad Co	836,777.65	2,926,954.14	3,763,731.79
Greene County Railroad Co		10,550.51	10,550.51
Fairmont & Southern Railroad Co		3,994.60	3,994.60
State Line & Southern Railroad Co		363.86	363.86
Investment in coal lands:			
Guffey Coal Lands	2,922,341.59	229,981.31	3,152,322.90
Kincheloe Coal Lands	645,519.59	23,750.07	669,269.66
Arnold Coal Lands	200,263.85	5,356.01	205,618.86
Fulton Coal Lands	329,625.15	30,066.39	359,691.54
Coal Land Expenses:			
West Virginia Coal Land—Expenses	34,521.87	294.77	34,816.64
Exploration of Coal Lands in Ohio	20,486.30		20,486.30
A. M. Neeper	40,000.00		40,000.00
Syndicate expenses:			
Fees—American Bridge Co	169,014.37		169,014.37
Jones suit	33,496.52		33,496.52
General expenses		6,570.65	6,570.65
Interest on Syndicate Underwriter's Payments	737,297.33		737,297.33
Syndicate Underwriter's Profit or Contingent Account	168,325.11		168,325.11
Purchasers Profit and Loss Account	187,211.76	86,855.35	274,067.11
Interest on deferred payments	334,262.82		334,262.82
Maximum Purchase Price (including interest)	8,809,512.82		
Purchasers advances for their own account		3,768,904.54	
Cost Price and Advances			12,578,417.36
Cash payments account Purchasers			8,771,732.04
Liabilities assumed—credit allowed by Syndicate:			
Accounts Payable Outstanding		14,721.73	
Unsettled rights of way claims		23,059.05	37,780.78
Advances made by Purchasers for their own account (as above)			3,768,904.54
Total			12,578,417.36

Italics indicate figures in red.

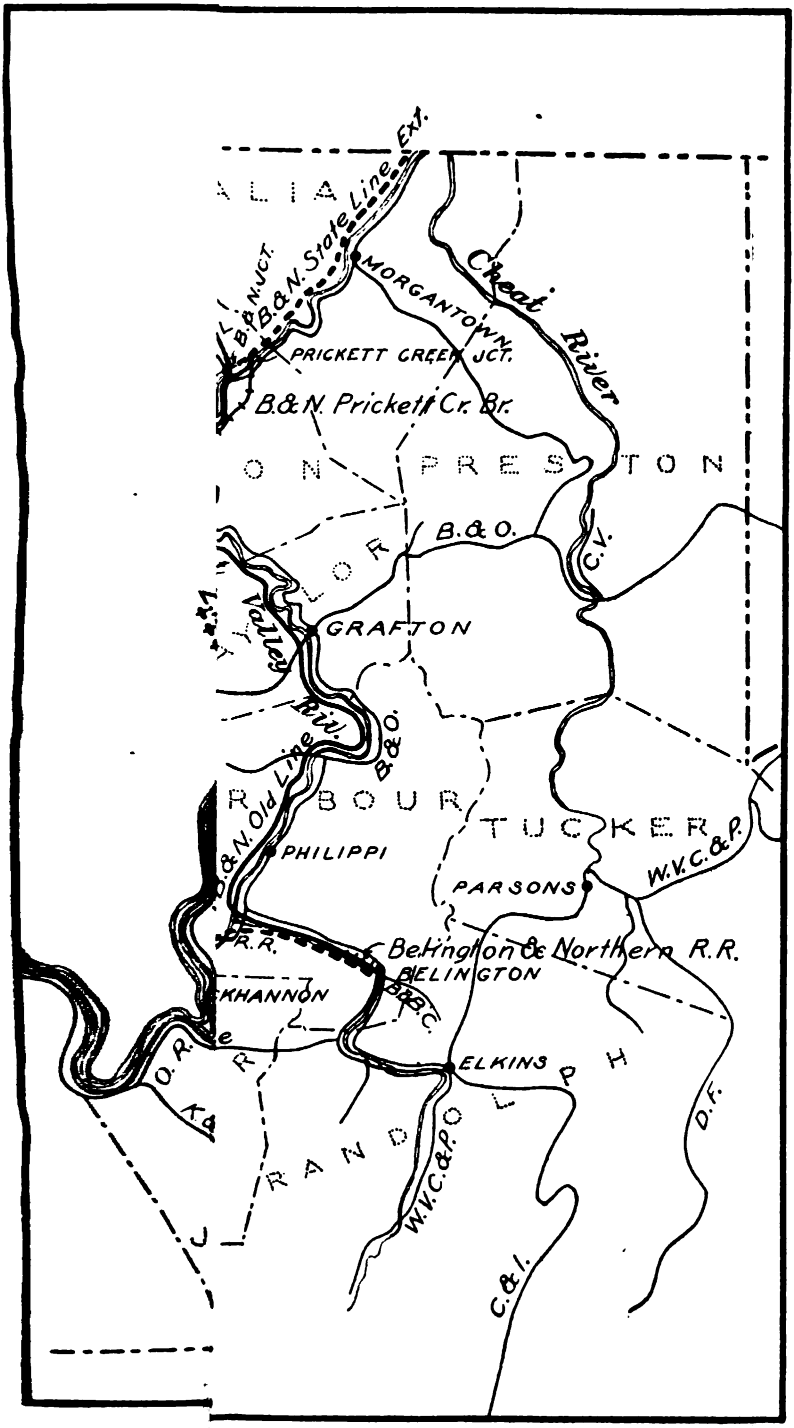
O. E. KENNEDY, *Auditor.*

PITTSBURGH, PENNSYLVANIA, *November 27th, 1914.*

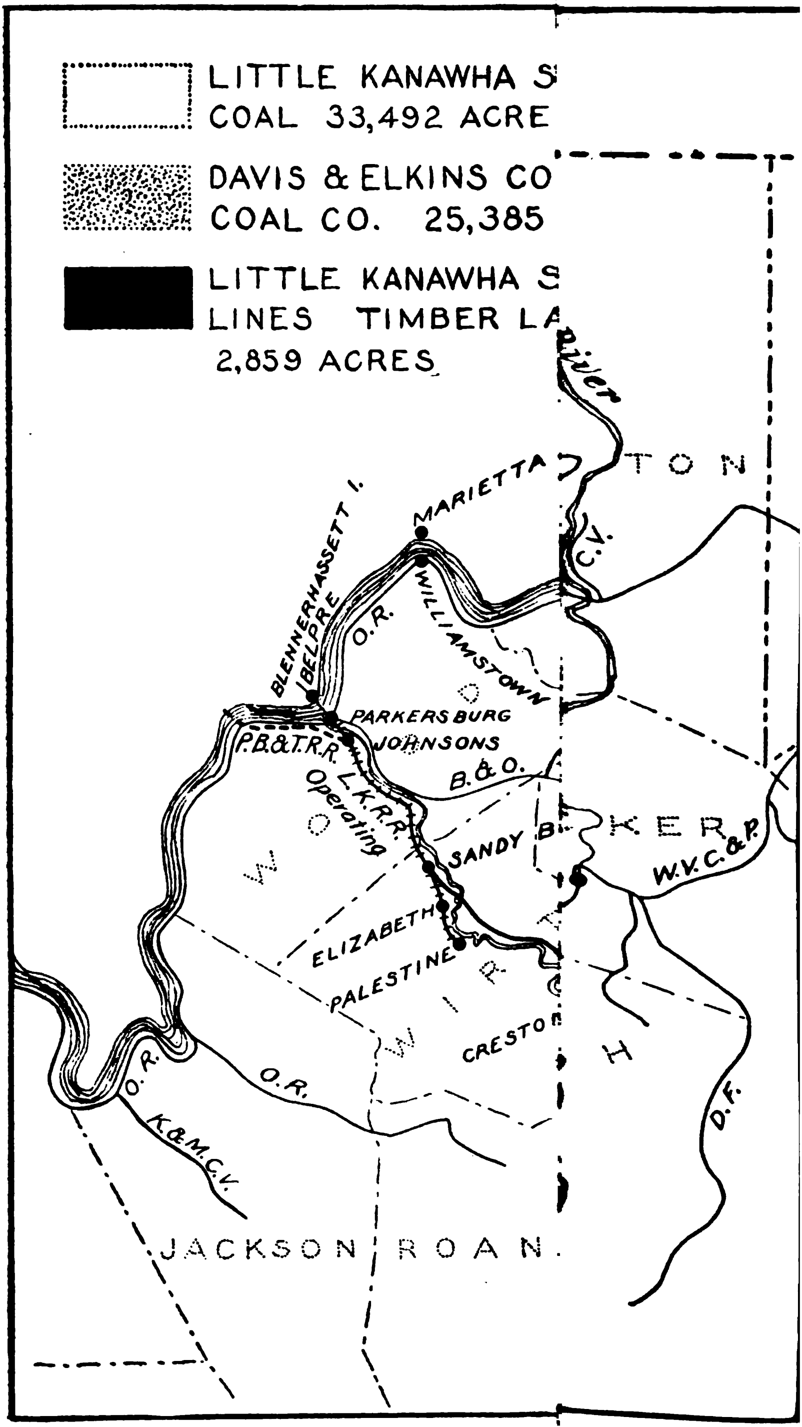
APPENDI the Little Kanawha syndicate, in West Virginia,



APPEND the Little Kanawha syndicate, in West Virginia,



Copy of map showing the pr



18186°—S. Doc. 12, 64–1. (To face page 93.)

APPENDIX No. 15.

Copy of map and estimate showing the present location of the Little Kanawha Railroad, its proposed eastern and western extensions, the location of certain coal properties, and the estimated cost of rebuilding the railroad and constructing its extensions, and other information, prepared by Samuel D. Brady, chief engineer. (Unimportant details omitted.)

Tonnage tributary to Little Kanawha Railroad, eastern extension, and Coal & Coke Railroad.

Company name.	Acres.	Coal tonnage (estimated).
Braxton Coal Co. or Davis & Elkins interests	20,000	80,000,000
Little Kanawha syndicate	13,000	52,000,000
Other holdings	5,000	20,000,000
Total	38,000	152,000,000

NOTE.—Tonnage figured on using 4,000 gross tons per acre.

Cost of construction to complete P. B. & T. R. R. from Ohio River division, B. & O. R. R., Parkersburg to Johnson Station on L. K. R. R., 4 miles	$200,000
Cost to rebuild L. K. R. R. from Johnson Station to Sandy Bend, 17.5 miles	350,000
Cost to complete L. K. R. R., eastern extension, from Sandy Bend to connection with Coal & Coke R. R. at Gilmer, 65 miles	4,500,000
Total cost	5,050,000

NOTE.—There is only about 1,000 acres of coal owned by Little Kanawha syndicate that is tributary to the Little Kanawha eastern extension if constructed, other coals being owned by Braxton Coal Co. and other interests and can all be served by Coal & Coke R. R. or B. & O. R. R., except about 20,000 acres lying in Lewis county, which would require a branch road from main line about 20 miles in length. The coal lying on border of Gilmer and Braxton counties owned by syndicate is tributary to Coal & Coke R. R. and would require a 20-mile branch from Little Kanawha eastern extension.

Fairmont, W. Va., Dec. 8, 1914.

LITTLE KANAWHA SYNDICATE LINES,
SAML. D. BRADY,
Chief Engineer.

64th Congress } SENATE { Document
1st Session } { No. 13

PRODUCTION, TRANSPORTATION, AND MARKETING OF CRUDE PETROLEUM

LETTER FROM THE CHAIRMAN
OF THE
INTERSTATE COMMERCE COMMISSION
TRANSMITTING
A REPORT OF INVESTIGATION
OF THE CONDITIONS AFFECTING THE PRODUCTION,
TRANSPORTATION, AND MARKETING OF CRUDE
PETROLEUM, MADE IN RESPONSE TO A
RESOLUTION OF THE SENATE OF
SEPTEMBER 28, 1914

December 10, 1915.—Referred to the Committee on Interstate Commerce
and ordered to be printed

WASHINGTON
1915

UNITED STATES OF AMERICA
GOVERNMENT PRINTING OFFICE

LETTER OF TRANSMITTAL.

INTERSTATE COMMERCE COMMISSION,
Washington, D. C., December 10, 1915.

To the PRESIDENT OF THE SENATE OF THE UNITED STATES.

SIR: I have the honor to transmit herewith report of investigation by the Interstate Commerce Commission in re conditions affecting the production, transportation, and marketing of crude petroleum, made in response to resolution of the Senate of the United States, dated September 28, 1914, of the Sixty-third Congress.

Respectfully,

C. C. MCCHORD, *Chairman.*

3213

INTERSTATE COMMERCE COMMISSION.

No. 7344.

IN RE CONDITIONS AFFECTING THE PRODUCTION, TRANSPORTATION, AND MARKETING OF CRUDE PETROLEUM.

October 11, 1915.

Facts relating to (1) the control of pipe-line companies, and (2) the discontinuance of the running and purchase of petroleum in 1914 and the reasons therefor.

REPORT OF THE COMMISSION TO THE SENATE OF THE UNITED STATES.

BY THE COMMISSION:

In Senate Resolution No. 442, of September 28, 1914, the full text of which appears in Appendix I of this report, this Commission was requested to ascertain, in connection with the production, transportation, and marketing of crude petroleum:

1. Whether the same interests have operated the pipe lines, made the market, bought the crude oil, refined it, and fixed the price of the refined products.
    (*a*) How the market has been created, maintained, and controlled, by whom, and the effect thereof upon the inducement of capital to enter the oil business.
    (*b*) The connection or relation of any kind which has existed or now exists between or among any two or more of the pipe-line companies.
    (*c*) The relations between pipe lines and purchasing agencies since 1890.
    (*d*) Disposition made by purchasing agencies of crude oil, to whom turned over for refining and manufacture, and under what conditions.
2. Whether the purchasing agencies have stopped purchasing and the pipe-line companies stopped running the crude oil of independent producers, and if so, the reasons therefor.

The act to regulate commerce, as amended in 1906, conferred upon this Commission authority to examine the accounts, records, and memoranda of common carriers engaged in the transportation of oil by pipe lines. The Commission has accordingly gathered from such sources much of the information requested by the Senate. However, a portion of the information desired can be secured only from the records of producing, purchasing, manufacturing, refining, and other industrial companies. The Federal Trade Commission has jurisdiction over such concerns and is examining their records in the course of its extensive investigation of the oil industry under Senate Resolutions No. 109 (Owen) and No. 457 (Gore). These resolutions are common in many respects with resolution No. 442 (Chilton), and in order to avoid undue duplication of work, the investigation of this Commission has been confined to the records of the several common-carrier pipe-line companies. Therefore, information obtainable only from records of industrial concerns is not included herein, but as we are advised, will be covered in the reports of the Federal Trade Commission.

CARRIERS EXAMINED.

There follows a statement giving the names of companies the records of which have been examined as of December 31, 1914, the states in which their operated pipe lines are located, and brief descriptions showing in a general way the nature of the transportation operations of the companies.

Originate no crude oil but merely participate as intermediate or delivering carriers in the movement of oil produced on the lines of other companies:

The Crescent Pipe Line Company [1]	Pennsylvania.
Northern Pipe Line Company [1]	Pennsylvania.
Oklahoma Pipe Line Company	Oklahoma.
Pure Oil Pipe Line Company	West Virginia, Pennsylvania.
Saddle River Oil Company	New Jersey.
Southern Pipe Line Company [1]	Pennsylvania.
Standard Oil Company (New Jersey) [2]	New Jersey, Maryland.
The Imperial Pipe Line Company, Limited	Ohio, Michigan.
Standard Oil Company of New York [1] [2]	New York.
Pure Oil Company [2]	Pennsylvania.

Originate crude oil and in addition participate as intermediate or delivering carriers in the movement of oil produced on the lines of other companies:

The Buckeye Pipe Line Company [1]	Ohio.
The Eureka Pipe Line Company [1]	West Virginia.
Gulf Pipe Line Company [3]	Texas.
Indiana Pipe Line Company [1]	Indiana.
Magnolia Petroleum Company [2] [3]	Texas.
National Transit Company [1]	Pennsylvania.
New York Transit Company [1]	New York.
The Ohio Oil Company [1] [3] [4] [5]	Ohio, Indiana, Illinois, Pennsylvania.
Standard Oil Company of Louisiana [2] [3] [5]	Louisiana.
Southwest Pennsylvania Pipe Lines [1]	Pennsylvania.
The Tidewater Pipe Company, Limited [3]	Illinois, Indiana, Ohio, Pennsylvania, New York, New Jersey.

Originate crude oil but do not participate in the movement of oil produced on the lines of other carriers:

Cumberland Pipe Line Company [1]	Kentucky.
Emery Pipe Line [3]	Pennsylvania, New York.
Gulf Pipe Line Company of Oklahoma [3]	Oklahoma.

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[1] Pipe line companies which were subsidiaries of the Standard Oil Company (New Jersey) prior to its dissolution in 1911.

[2] Also engaged in the refining of crude oil.

[3] Also engaged in the purchase of crude oil from producers.

[4] The pipe lines of these companies are now separately incorporated as The Illinois Pipe Line Company and The Prairie Pipe Line Company, respectively. At the time of our examination, early in 1915, it was necessary to confine ourselves to the accounts of the original companies.

[5] Also engaged in the production of crude oil.

Originate crude oil but do not participate in the movement of oil produced on the lines of other carriers—Continued.

Magnolia Pipe Line Company [1]	Oklahoma, Texas.
The National Pipe Line Company	West Virginia, Ohio.
The National Refining Company (Oklahoma)	Oklahoma.
The Nowata Pipe Line Company	Oklahoma, Kansas.
The Producers and Refiners Oil Company [1]	Ohio, Pennsylvania, West Virginia.
The Texas Company [2] [1]	Texas, Louisiana, Oklahoma.
The Prairie Oil and Gas Company [3] [1] [4] [5]	Oklahoma, Kansas, Missouri, Iowa, Illinois, Indiana, Arkansas.

Transports refined oil from refineries in Pennsylvania to Marcus Hook, Pennsylvania:

United States Pipe Line Company	Pennsylvania, New York.

RELATIONS BETWEEN PIPE-LINE COMPANIES.

The records of companies hereinbefore listed were examined to ascertain if any of their stocks are owned by other pipe-line companies or by any industrial oil companies, and whether any of the pipe-line companies own securities of such other companies. The only instances of such ownership disclosed by pipe-line records are as follows:

Capital stock of—	Shares outstanding.	Owned by (company)—	Shares.	Per cent.
Gulf Pipe Line Co.	35,000	Gulf Oil Corporation	34,993	99.98
Gulf Pipe Line Co. of Oklahoma	10,000	do.	9,991	99.91
The Imperial Pipe Line Co., Ltd.	2,800	Imperial Oil Co., Ltd., of Canada [1]	2,795	99.82
The National Pipe Line Co.	250	National Refining Co. (Ohio)	225	90.00
Oklahoma Pipe Line Co.	16,500	Standard Oil Co. (New Jersey)	16,495	99.97
The Producers & Refiners Oil Co	2,500	National Transit Co.	300	12.00
		Pure Oil Co.	2,147	85.88
Pure Oil Pipe Line Co.	3,000	do.	2,990	99.67
Standard Oil Co. of Louisiana	50,000	Standard Oil Co. (New Jersey)	49,970	99.94
United States Pipe Line Co.	11,939	National Transit Co.	4,000	33.50
		Pure Oil Co.	6,165	51.64
Saddle River Oil Co.	5,000	Standard Oil Co. of New York	4,995	99.90

[1] A majority of the capital stock of Imperial Oil Co., Ltd., of Canada is owned by the Standard Oil Co. (New Jersey).

The National Transit Company owns stock of Franklin Pipe Company, Limited, having a book value of $7,410.

The entire capital stock, 1,000 shares, of Producers and Refiners Pipe Line Company is owned by The Producers and Refiners Oil Company, which operates the property of the former under lease.

The Standard Oil Company (New Jersey) owns 49,950 shares of

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[1] Also engaged in the purchase of crude oil from producers.

[2] Also engaged in the refining of crude oil.

[3] Pipe line companies which were subsidiaries of the Standard Oil Company (New Jersey) prior to its dissolution in 1911.

[4] The pipe lines of these companies are now separately incorporated as The Illinois Pipe Line Company and The Prarie Pipe Line Company, respectively. At the time of our examination, early in 1915, it was necessary to confine ourselves to the accounts of the original companies.

[5] Also engaged in the production of crude oil.

Tuscarora Oil Company, Limited, par value $4,995,000. The pipe lines of the Tuscarora Oil Company, Limited, were operated by The Ohio Oil Company under lease, which was terminated July 1, 1915.

The Texas Company owns the entire capital stock, par value $852,300, of the Louisiana Company, which holds various lands, leases, and securities of producing, gas, refining, and marketing companies in Louisiana and elsewhere for The Texas Company. The Texas Company also owns $3,000,000 par value of bonds of the Producers Oil Company, whose business is leasing lands, drilling for and producing oil, and marketing it in its crude state, and $2,906,000 of bonds of the Industrial Securities Company, which controls the Producers Oil Company.

The Pure Oil Company owns 9,161 shares of Pure Oil Producing Company, par value $916,100; 1,987 shares of Quaker Oil & Gas Company, par value $49,675; 400 shares of Northwestern Oil & Gas Company, par value $10,000; 5,000 shares of Pure Oil Operating Company, par value $5,000; 250 shares of Delmar Oil Company, par value $12,500.

Certain pipe-line companies have directors and officers common with other pipe-line companies, as follows:

NORTHERN GROUP.

Name.	Common directors.	Common officers.		
		President.	Treasurer.	Secretary.
Bushnell, Douglas S	Indiana Pipe Line Co.; The Buckeye Pipe Line Co.; Northern Pipe Line Co.; New York Transit Co.	Indiana Pipe Line Co.; The Buckeye Pipe Line Co.; Northern Pipe Line Co.; New York Transit Co.		
Harris, W. A			Indiana Pipe Line Co.; The Buckeye Pipe Line Co.; Northern Pipe Line Co.; New York Transit Co.	
Chesebro, George				Indiana Pipe Line Co.; The Buckeye Pipe Line Co.; Northern Pipe Line Co.; New York Transit Co.

SOUTHERN GROUP.

Name.	Common directors.	President.	Treasurer.	Secretary.
Towl, Forrest M	Cumberland Pipe Line Co.; The Eureka Pipe Line Co.; Southwest Pennsylvania Pipe Lines; Southern Pipe Line Co.	Cumberland Pipe Line Co.; The Eureka Pipe Line Co.; Southwest Pennsylvania Pipe Lines; Southern Pipe Line Co.		
Shepard, E. B			Cumberland Pipe Line Co.; The Eureka Pipe Line Co.; Southwest Pennsylvania Pipe Lines; Southern Pipe Line Co.	Cumberland Pipe Line Co. The Eureka Pipe Line Co.; Southwest Pennsylvania Pipe Lines; Southern Pipe Line Co.

PURE OIL COMPANY GROUP.

Name.	Common directors.	Common officers.			
		President.	Vice president.	Secretary and treasurer.	General manager.
Westgate, T. B.	Pure Oil Co.; The Producers and Refiners Oil Co.; Pure Oil Pipe Line Co.				
Murphy, M.	Pure Oil Co.; The Producers and Refiners Oil Co.; Pure Oil Pipe Line Co.; United States Pipe Line Co.	Pure Oil Co.; Pure Oil Pipe Line Co.; United States Pipe Line Co.	The Producers and Refiners Oil Co.		
Jennings, E. H.	do	The Producers and Refiners Oil Co.	United States Pipe Line Co.		
Wals, L.	do				
Phillips, jr., T. W.	Pure Oil Co.; Pure Oil Pipe Line Co.; United States Pipe Line Co.				
McBride, W. C.	Pure Oil Co.; The Producers and Refiners Oil Co.; Pure Oil Pipe Line Co.; United States Pipe Line Co.		Pure Oil Co.; Pure Oil Pipe Line Co.		
Suhr, C. L.	Pure Oil Co.; Pure Oil Pipe Line Co.; United States Pipe Line Co.				
Webber, N. H.				Pure Oil Co.; Pure Oil Pipe Line Co.	United States Pipe Line Co.
Curtis, W. L.	Pure Oil Co.; Pure Oil Pipe Line Co.				
Smink, F. C.	do				
Emery, Lewis	do				

MISCELLANEOUS COMPANIES.

Name.	Common directors.	Common officers.						
		Chairman.	President.	Vice president.	Vice president and treasurer.	Secretary and treasurer.	Secretary.	Treasurer.
Bedford, A. C.	Standard Oil Co. (New Jersey); Standard Oil Co. of Louisiana; Oklahoma Pipe Line Co.			Oklahoma Pipe Line Co.	Standard Oil Co. (New Jersey).			
Bedford, F. H.	Standard Oil Co. (New Jersey); Standard Oil Co. of Louisiana.			Standard Oil Co. (New Jersey); Standard Oil Co. of Louisiana.				
Weller, F. W.	Standard Oil Co. of Louisiana; Oklahoma Pipe Line Co.; The Tidewater Pipe Co., Ltd. (manager).		Standard Oil Co. of Louisiana.	Standard Oil Co. (New Jersey).				
Williams, F. D.	United States Pipe Line Co.; National Transit Co.							
Huyck, R.	do.							
Lamprecht, J. I.	The National Pipe Line Co.; The National Refining Co. (Oklahoma).							
Fretter, F. B.	do.		The National Pipe Line Co.; The National Refining Co. (Oklahoma).					
Ruetz, Will C.	do.					The National Pipe Line Co.; The National Refining Co. (Oklahoma).		
Mellon, W. L.	Gulf Pipe Line Co. of Oklahoma; Gulf Pipe Line Co.	Gulf Pipe Line Co. of Oklahoma; Gulf Pipe Line Co.						

MISCELLANEOUS COMPANIES—Continued.

Name.	Common directors.	Common officers.						
		Chairman.	President.	Vice president.	Vice president and treasurer.	Secretary and treasurer.	Secretary.	Treasurer.
Leovy, F. A.	Gulf Pipe Line Co. of Oklahoma; Gulf Pipe Line Co.			Gulf Pipe Line Co. of Oklahoma; Gulf Pipe Line Co.				
Davison, George S.	do		Gulf Pipe Line Co. of Oklahoma; Gulf Pipe Line Co.					
Phillips, H. A.	do							
Wheeler, L. H.	do							
Nazro, Underwood				Gulf Pipe Line Co. of Oklahoma; Gulf Pipe Line Co.				
Guthrie, W. J.							Gulf Pipe Line Co. of Oklahoma; Gulf Pipe Line Co.	
Mellon, R. B.								Gulf Pipe Line Co. of Oklahoma; Gulf Pipe Line Co.
Proctor, W C.								Magnolia Pipe Line Co.; Magnolia Petroleum Co.
Folger, jr., Henry C.	Saddle River Oil Co.; Standard Oil Co. of New York.		Saddle River Oil Co.; Standard Oil Co. of New York.					
Pratt, Herbert L.	do			Saddle River Oil Co.; Standard Oil Co. of New York.				
Veit, Richard C.	do						Saddle River Oil Co.; Standard Oil Co. of New York.	
Tinsley, Richard P.	do							Saddle River Oil Co.; Standard Oil Co. of New York.

Under the decree of dissolution which followed the decision of the Supreme Court of the United States in *Standard Oil Co. of New Jersey et al.* v. *U. S.*, 221 U. S., 1, the stocks of pipe-line companies and certain other subsidiaries owned by the Standard Oil Company (New Jersey) were in 1911 distributed ratably to the shareholders of that company, resulting in many individuals becoming holders of stocks in several companies. Many original holders have retained their stocks in more than one company and new investors have purchased stocks in more than one company. The following statement shows the number of persons holding 100 or more shares of the stocks of companies which operate pipe lines, including former Standard Oil Company subsidiaries, the aggregate amount of their holdings therein, and the percentages such holdings bear to the total outstanding stocks of those companies, which persons also hold 100 or more shares of the stocks of other companies which operate pipe lines.

Share-holders.	Of—	Owning in the aggregate as of Dec. 31, 1914.	
		Shares.	Per cent.
181	The Buckeye Pipe Line Co	151,266	75.63
9	Cumberland Pipe Line Co	4,077	40.77
79	The Crescent Pipe Line Co	40,121	66.87
72	The Eureka Pipe Line Co	33,815	67.63
1	Gulf Pipe Line Co	34,993	99.98
1	Gulf Pipe Line Co. of Oklahoma	9,991	99.91
166	Indiana Pipe Line Co	70,478	70.48
3	Magnolia Pipe Line Co	1,875	75.00
4	Magnolia Petroleum Co	46,432	75.81
388	National Transit Co	411,715	80.67
72	New York Transit Co	33,164	66.33
59	Northern Pipe Line Co	25,008	62.51
419	The Ohio Oil Co	491,944	81.99
1	Oklahoma Pipe Line Co	16,495	99.97
153	The Prairie Oil and Gas Co	136,399	75.78
14	Pure Oil Co	28,857	3.17
2	The Producers and Refiners Oil Co	2,447	97.88
1	Standard Oil Co. of Louisiana	49,970	99.94
872	Standard Oil Co. (New Jersey)	837,876	85.20
[1] 548	Standard Oil Co. of New York	643,870	85.86
1	Saddle River Oil Co	4,960	99.20
32	Southwest Pennsylvania Pipe Lines	21,507	61.45
117	Southern Pipe Line Co	71,935	71.94
39	The Texas Co	34,566	11.52
2	United States Pipe Line Co	10,165	85.14

[1] These figures are as of Nov. 27, 1914.

RELATIONS BETWEEN PIPE LINES AND PURCHASING COMPANIES.

The South Penn Oil Company produces oil and also purchases it from other producers in New York, Pennsylvania, West Virginia, Kentucky, and Ohio, and sells it to refiners on the Atlantic seaboard and elsewhere, shipping it over common-carrier pipe lines. The company does not own securities of any pipe lines, nor does any pipe-line company own any of its securities. Fifty holders of 300 shares or over of South Penn Oil Company stock, aggregating 78,927 shares or 63.14 per cent, own stock in one or more pipe-line companies.

DELIVERIES OF CRUDE OIL BY PIPE-LINE COMPANIES.

The resolution requests the Commission to ascertain what disposition the purchasing agencies have made of crude oil purchased, and to whom it has been turned over for refining and manufacture. Part of this information is obtainable only from records of industrial oil concerns, and will be covered in the reports of the Federal Trade Commission. However, the records of pipe-line companies disclose the names of purchasers of oil on their lines and the names of those to whom the oil was delivered. This information in connection with the pipe-line companies hereinbefore listed, except those which are not originating lines but merely participate in the movement of oil produced on the lines of other carriers, is given in Appendix II of this report.

SECTION II.

DISCONTINUANCE OF RUNNING AND PURCHASE OF CRUDE OIL IN 1914.

The pipe lines of The Crescent Pipe Line Company, Northern Pipe Line Company, Oklahoma Pipe Line Company, Pure Oil Pipe Line Company, Saddle River Oil Company, Southern Pipe Line Company, Standard Oil Company (New Jersey), The Imperial Pipe Line Company, Limited, Standard Oil Company of New York, and Pure Oil Company do not connect with any producing crude oil fields, but merely participate in the movement of oil produced on the lines of other companies. No petroleum is run directly into their lines from the wells of either independent or affiliated producers. Consequently none of these companies discontinued or curtailed the running or purchasing of crude oil of independent producers during 1914.

The pipe lines of The Buckeye Pipe Line Company (Macksburg division only), Cumberland Pipe Line Company, The Eureka Pipe Line Company, and The Producers and Refiners Oil Company, operating in the Appalachian field, are directly connected with extensive producing fields and did curtail the running of crude oil from producers' wells in 1914. The reasons for this action are stated by executives of these companies in letters, the full texts of which appear in Appendix III. Briefly stated, it is averred that business conditions, due largely to the war in Europe, curtailed the demand for crude oil, hence it became necessary to curtail the amount they would accept from producers. Not knowing how long these conditions would continue and fearing that the normal production would soon exhaust their available tankage capacity and necessitate refusing all oil produced, the companies decided to curtail proportionately the amount of oil they would run for producers, thus conserving the life of the wells and their own ability to care for the reduced output of each producer.

Representatives of this Commission made an examination of the companies' daily records for the purpose of comparing the oil stocks at stations with the safety capacities of tanks. The data thus compiled is too voluminous to include herein, but statements below show this comparison for stations having tankage capacities of 5,000 barrels or over on the Buckeye, Cumberland, and Eureka companies for each date when runs were decreased, increased, and resumed, and for the Producers and Refiners for specific dates in each month during the period of curtailment.

The Tidewater Pipe Company, Limited, also curtailed the running of crude oil because, according to a letter from its president, reproduced in Appendix III, the war conditions in Europe made it impossible for the Tidewater Oil Company, which purchases substantially all the oil produced on the lines of the pipe-line company, to dispose of the output of its refinery and obliged it to curtail its purchases of crude oil, which action in turn caused the pipe-line company to curtail its runs.

THE BUCKEYE PIPE LINE COMPANY.

Stations.	Runs from producers' wells were—			
	Decreased Aug. 3, 1914.	Decreased Aug. 15, 1914.	Increased Sept. 25, 1914.	Fully resumed Sept. 28, 1914.
PENNSYLVANIA GRADE OIL.				
Bells Run, Ohio:	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
Stocks	355,837.86	395,940.95	450,023.49	450,439.33
Safety capacity of available tanks	350,469.00	[1]385,442.00	[2]455,391.00	455,391.00
Excess available tankage over stocks			5,367.51	4,951.67
Excess stocks over available tankage	5,368.86	10,498.95		
Payne, Ohio:				
Stocks	9,256.33	12,033.48	4,895.27	3,142.98
Safety capacity of available tanks	15,171.00	15,171.00	15,171.00	15,171.00
Excess available tankage over stocks	5,914.67	3,137.52	10,275.73	12,028.02
Joy, Ohio:				
Stocks	1,392.69	5,277.05	1,607.44	4,659.74
Safety capacity of available tanks	12,522.00	12,522.00	12,522.00	12,522.00
Excess available tankage over stocks	11,129.31	7,244.95	10,914.56	7,862.26
Gravel Bank, Ohio:				
Stocks	36,512.04	36,951.32	32,926.28	31,199.51
Safety capacity of available tanks	37,922.00	37,922.00	37,922.00	37,922.00
Excess available tankage over stocks	1,409.96	970.68	4,995.72	6,722.49
CORNING GRADE OIL.				
Bells Run, Ohio:				
Stocks	35,134.27	35,134.27	3,035.51	5,854.57
Safety capacity of available tanks	69,846.00	69,846.00	69,846.00	69,846.00
Excess available tankage over stocks	34,711.73	34,711.73	66,810.49	63,991.43
Corning, Ohio:				
Stocks	27,167.62	30,865.63	25,220.80	23,947.64
Safety capacity of available tanks	68,969.00	68,969.00	68,969.00	68,969.00
Excess available tankage over stocks	41,801.38	38,103.37	43,748.20	45,021.36
Waters, Ohio:				
Stocks	11,500.86	8,608.90	2,856.08	2,519.00
Safety capacity of available tanks	27,068.00	27,068.00	27,068.00	27,068.00
Excess available tankage over stocks	15,567.14	18,459.10	24,211.92	24,549.00

[1] New tank added Aug. 4, 1914.
[2] New tanks added Aug. 29 and Sept. 16, 1914.

CUMBERLAND PIPE LINE COMPANY.

Stations.	Runs from producers' wells were—				
	Decreased Aug. 13, 1914.	Decreased Sept. 1, 1914.	Increased Sept. 8, 1914.	Increased Sept. 24, 1914.	Fully resumed Oct. 1, 1914.
SOMERSET GRADE OIL.					
Somerset, Ky.:	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
Stocks	131,623.40	130,349.26	132,394.03	136,358.40	137,634.81
Safety capacity of available tanks	137,925.83	137,925.83	137,925.83	137,925.83	137,925.83
Excess available tankage over stocks	6,302.43	7,576.57	5,531.80	1,567.43	291.02
Monticello, Ky.:					
Stocks	7,327.60	9,951.01	9,192.91	9,584.28	10,571.22
Safety capacity of available tanks	11,132.82	11,132.82	11,132.82	11,132.82	11,132.82
Excess available tankage over stocks	3,805.22	1,181.81	1,939.91	1,548.54	561.60
Manchester, Ky.:					
Stocks	5,206.67	5,270.27	5,270.27	3,999.41	3,482.02
Safety capacity of available tanks	5,456.50	5,456.50	5,456.50	5,456.50	5,456.50
Excess available tankage over stocks	249.83	186.23	186.23	1,457.09	1,974.48

THE EUREKA PIPE LINE COMPANY.

Stations.	Runs from producers' wells were—					
	Decreased July 31, 1914.	Decreased Aug. 4, 1914.	Increased Aug. 28, 1914.	Increased Sept. 15, 1914.	Increased Sept. 21, 1914.	Fully resumed Sept. 26, 1914.
PENNSYLVANIA GRADE OIL.						
Morgantown, W. Va.:	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
Stocks	1,115,598.18	1,083,199.94	1,101,190.96	954,296.33	1,051,440.49	992,671.18
Safety capacity of available tanks	1,063,618.92	[1] 1,248,401.56	1,248,401.56	1,248,401.56	1,248,401.56	[2] 1,314,172.26
Excess available tankage over stocks	....	165,201.62	147,210.60	294,105.23	196,961.07	321,501.08
Excess stocks over available tankage	51,979.26	....	....	....	....	....
Hamlin, W. Va.:						
Stocks	19,003.30	16,896.66	29,173.68	40,032.99	14,347.45	26,782.66
Safety capacity of available tanks	50,311.63	50,311.63	50,311.63	50,311.63	50,311.63	50,311.63
Excess available tankage over stocks	31,308.33	33,414.97	21,137.95	10,278.64	35,964.18	23,528.97
Eureka, W. Va.:						
Stocks	61,604.37	54,896.81	47,471.99	64,691.81	32,916.04	22,212.76
Safety capacity of available tanks	131,899.35	131,899.35	131,899.35	131,899.35	131,899.35	131,899.35
Excess available tankage over stocks	70,294.98	77,002.54	84,427.36	67,207.54	98,983.31	109,686.59
Downs, W. Va.:						
Stocks	78,714.95	80,538.17	67,682.93	72,009.47	80,052.17	73,765.79
Safety capacity of available tanks	141,026.60	141,026.60	141,026.60	141,026.60	141,026.60	141,026.60
Excess available tankage over stocks	62,311.65	60,488.43	73,343.67	69,017.13	60,974.43	67,260.81
Braden, W. Va.:						
Stocks	61,911.84	64,869.14	60,566.07	67,318.10	33,059.06	51,605.63
Safety capacity of available tanks	118,667.62	118,667.62	118,667.62	118,667.62	118,667.62	118,667.62
Excess available tankage over stocks	56,755.78	53,798.48	58,101.55	51,349.52	85,608.56	67,061.99
Mill Creek, W. Va.:						
Stocks	16,825.86	17,913.33	20,382.52	16,920.33	10,818.47	16,690.48
Safety capacity of available tanks	23,298.93	23,298.93	23,298.93	23,298.93	23,298.93	23,298.93
Excess available tankage over stocks	6,473.07	5,385.60	2,916.41	6,378.60	12,480.46	6,608.45
Thistle, W. Va.:						
Stocks	104,715.84	107,677.36	93,527.88	104,671.67	108,869.89	103,895.43
Safety capacity of available tanks	132,361.99	132,361.99	132,361.99	132,361.99	132,361.99	132,361.99
Excess available tankage over stocks	27,646.65	24,684.63	38,834.11	27,690.32	23,492.10	28,466.56
Littleton, W. Va.:						
Stocks	15,321.48	11,219.12	16,095.28	17,203.44	18,716.12	19,102.42
Safety capacity of available tanks	20,826.77	20,826.77	20,826.77	20,826.77	20,826.77	20,826.77
Excess available tankage over stocks	5,505.29	9,607.65	4,731.49	3,623.33	2,110.65	1,724.35
Elm Run, W. Va.:						
Stocks	85,168.24	87,749.93	63,191.65	87,131.89	64,102.91	78,599.80
Safety capacity of available tanks	142,866.50	142,866.50	142,866.50	142,866.50	142,866.50	142,866.50
Excess available tankage over stocks	57,698.26	55,116.57	79,674.85	55,734.61	78,763.59	64,266.70
Martin, W. Va.:						
Stocks	4,292.51	4,737.79	5,256.80	5,581.47	5,252.52	3,615.92
Safety capacity of available tanks	8,587.16	8,587.16	8,587.16	8,587.16	8,587.16	8,587.16
Excess available tankage over stocks	4,294.65	3,849.37	3,330.36	3,005.69	3,334.64	4,971.24
Sand Fork, W. Va.:						
Stocks	17,782.62	18,399.08	20,604.17	21,999.87	22,345.59	26,338.32
Safety capacity of available tanks	44,208.23	44,208.23	44,208.23	44,208.23	44,208.23	44,208.23
Excess available tankage over stocks	26,425.61	25,809.15	23,604.06	22,208.36	21,862.64	17,869.91

[1] During the months of August and September some tanks generally reserved for western oil were used for Pennsylvania grade. Tankage for the latter grade increased 184,782.64 barrels.

[2] After Sept. 21, 1914, two tanks formerly used for Cabell grade oil were used for Pennsylvania grade oil.

THE EUREKA PIPE LINE COMPANY—Continued.

Stations.	Runs from producers' wells were—					
	Decreased July 31, 1914.	Decreased Aug. 4, 1914.	Increased Aug. 28, 1914.	Increased Sept. 15, 1914.	Increased Sept. 21, 1914.	Fully resumed Sept. 26, 1914.
PENNSYLVANIA GRADE OIL—continued.						
Ten Mile, W. Va.:	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
Stocks	20,661.42	23,299.80	26,073.35	25,958.44	21,604.60	14,215.49
Safety capacity of available tanks	28,177.59	28,177.59	28,177.59	28,177.59	28,177.59	28,177.59
Excess available tankage over stocks	7,516.17	4,877.79	2,104.24	2,219.15	6,572.99	13,962.10
Bond Creek, W. Va.:						
Stocks	9,376.33	9,787.08	10,092.76	9,939.92	10,226.50	9,586.48
Safety capacity of available tanks	10,676.62	10,676.62	10,676.62	10,676.62	10,676.62	10,676.62
Excess available tankage over stocks	1,300.29	889.54	583.86	736.70	450.12	1,090.14
Flat Fork, W. Va.:						
Stocks	58,366.98	34,456.42	26,655.23	30,578.10	32,113.43	34,403.05
Safety capacity of available tanks	61,168.96	61,168.96	61,168.96	61,168.96	61,168.96	61,168.96
Excess available tankage over stocks	2,801.98	26,712.54	34,513.73	30,590.86	29,055.53	26,765.91
Brice, W. Va.:						
Stocks	20,968.83	11,503.79	11,748.52	12,567.53	14,123.52	14,007.45
Safety capacity of available tanks	29,818.08	29,818.08	29,818.08	29,818.08	29,818.08	29,818.08
Excess available tankage over stocks	8,849.25	18,314.29	18,069.56	17,250.55	15,694.56	15,810.63
Brisco, W. Va.:						
Stocks	10,350.14	9,975.82	10,108.48	10,117.40	10,033.14	10,122.78
Safety capacity of available tanks	14,632.12	14,632.12	14,632.12	14,632.12	14,632.12	14,632.12
Excess available tankage over stocks	4,281.98	4,656.30	4,523.64	4,514.72	4,598.98	4,509.34
Mount, W. Va.:						
Stocks	5,925.76	4,072.37	1,452.69	1,654.96	1,181.32	1,553.60
Safety capacity of available tanks	7,244.34	7,244.34	7,244.34	7,244.34	7,244.34	7,244.34
Excess available tankage over stocks	1,318.58	3,171.97	5,791.65	5,589.38	6,063.02	5,690.74
CABELL GRADE OIL.						
Morgantown, W. Va.:						
Stocks	88,353.69	88,962.40	88,962.40	88,925.96	88,925.96	9,158.13
Safety capacity of available tanks	91,636.66	91,636.66	91,636.66	91,636.66	91,636.66	[1] 25,865.96
Excess available tankage over stocks	3,282.97	2,674.26	2,674.26	2,710.70	2,710.70	16,707.83
Hamlin, W. Va.:						
Stocks	9,169.75	9,237.46	9,903.09	10,022.10	10,475.81	10,424.61
Safety capacity of available tanks	14,346.12	14,346.12	14,346.12	14,346.12	14,346.12	14,346.12
Excess available tankage over stocks	5,176.37	5,108.66	4,443.03	4,324.02	3,870.31	3,921.51

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[1] Two tanks used for Pennsylvania grade after Sept. 21, 1914.

THE PRODUCERS AND REFINERS OIL COMPANY.

Stations.	June, 1914.	July, 1914.	Aug., 1914.	Sept., 1914.
PENNSYLVANIA GRADE OIL.				
Dye, Ohio:				
Dates—	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
1 Stocks	25,007.07	29,079.17	28,380.46	19,191.24
Safety capacity of available tanks	31,186.00	31,186.00	31,186.00	31,186.00
Excess available tankage over stocks	6,178.93	2,106.83	2,805.54	11,994.76
15 Stocks	28,684.60	29,648.12	13,793.83	7,319.62
Safety capacity of available tanks	31,186.00	31,186.00	31,186.00	31,186.00
Excess available tankage over stocks	2,501.40	1,537.88	17,392.17	23,866.38
30 Stocks	28,571.33			7,451.60
Safety capacity of available tanks	31,186.00			31,186.00
Excess available tankage over stocks	2,614.67			23,734.40
31 Stocks		29,590.25	18,599.02	
Safety capacity of available tanks		31,186.00	31,186.00	
Excess available tankage over stocks		1,595.75	12,586.98	
St. Marys, Ohio:				
Dates—				
1 Stocks	4,520.29	5,066.83	4,456.04	2,825.93
Safety capacity of available tanks	5,907.00	5,907.00	5,907.00	5,907.00
Excess available tankage over stocks	1,386.71	840.17	1,450.96	3,081.07
15 Stocks	4,626.61	5,576.82	3,272.05	2,981.72
Safety capacity of available tanks	5,907.00	5,907.00	5,907.00	5,907.00
Excess available tankage over stocks	1,280.39	330.18	2,634.95	2,925.28
30 Stocks	5,292.46			2,360.89
Safety capacity of available tanks	5,907.00			5,907.00
Excess available tankage over stocks	614.54			3,546.11
31 Stocks		4,404.91	2,778.71	
Safety capacity of available tanks		5,907.00	5,907.00	
Excess available tankage over stocks		1,502.09	3,128.29	
Dotters, Pa.:				
Dates—				
1 Stocks	6,117.75	11,693.48	11,671.91	11,577.52
Safety capacity of available tanks	11,903.76	11,903.76	11,903.76	11,903.76
Excess available tankage over stocks	5,786.01	210.28	231.85	326.24
15 Stocks	6,125.84	11,693.46	11,628.75	11,515.52
Safety capacity of available tanks	11,903.76	11,903.76	11,903.76	11,903.76
Excess available tankage over stocks	5,777.92	210.30	275.01	388.24
30 Stocks	9,854.64			11,461.59
Safety capacity of available tanks	11,903.76			11,903.76
Excess available tankage over stocks	2,049.12			442.17
31 Stocks		11,671.91	11,577.52	
Safety capacity of available tanks		11,903.76	11,903.76	
Excess available tankage over stocks		231.85	326.24	
Oil City, Pa.:				
Dates—				
1 Stocks	129,356.29	129,478.91	129,488.09	124,204.32
Safety capacity of available tanks	134,743.41	134,743.41	134,743.41	134,743.41
Excess available tankage over stocks	5,387.12	5,264.50	5,255.32	10,539.09
15 Stocks	127,703.26	132,931.02	128,383.00	121,462.53
Safety capacity of available tanks	134,743.41	134,743.41	134,743.41	134,743.41
Excess available tankage over stocks	7,040.15	1,812.39	6,360.41	13,280.88
30 Stocks	125,982.05			105,770.18
Safety capacity of available tanks	134,743.41			134,743.41
Excess available tankage over stocks	8,761.36			28,973.23
31 Stocks		132,238.34	122,133.49	
Safety capacity of available tanks		134,743.41	134,743.41	
Excess available tankage over stocks		2,505.07	12,609.92	
Titusville Pa.:				
Dates—				
1 Stocks	64,839.02	65,694.53	65,118.72	62,039.81
Safety capacity of available tanks	65,655.54	65,655.54	65,655.54	65,655.54
Excess available tankage over stocks	816.52		536.82	3,615.73
Excess stocks over available tankage		38.99		
15 Stocks	65,829.27	64,667.10	64,263.32	59,037.06
Safety capacity of available tanks	65,655.54	65,655.54	65,655.54	65,655.54
Excess available tankage over stocks		988.44	1,392.22	6,618.48
Excess stocks over available tankage	173.73			
30 Stocks	65,694.53			54,794.32
Safety capacity of available tanks	65,655.54			65,655.54
Excess available tankage over stocks				10,861.22
Excess stocks over available tankage	38.99			
31 Stocks		63,983.06	60,806.69	
Safety capacity of available tanks		65,655.54	65,655.54	
Excess available tankage over stocks		1,672.48	4,848.85	
Coraopolis, Pa.:				
Dates—				
1 Stocks	68,959.64	73,011.01	98,269.26	105,596.99
Safety capacity of available tanks	75,326.00	75,326.00	[1]112,661.00	112,661.00
Excess available tankage over stocks	6,366.36	2,314.99	14,391.74	7,064.01
15 Stocks	72,843.43	73,190.80	103,606.56	98,278.15
Safety capacity of available tanks	75,326.00	75,326.00	[1]112,661.00	112,661.00
Excess available tankage over stocks	2,482.57	2,135.20	9,054.44	14,382.85

[1] New tank added July 17, 1914.

THE PRODUCERS AND REFINERS OIL COMPANY—Continued.

Stations.	June, 1914.	July, 1914.	Aug., 1914.	Sept., 1914.
PENNSYLVANIA GRADE OIL—continued.				
Coraopolis, Pa.—Continued.				
Dates—Continued.	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
30 Stocks	71,209.54			89,892.30
Safety capacity of available tanks	75,326.00			112,661.05
Excess available tankage over stocks	4,116.46			22,768.75
31 Stocks		97,020.06	106,442.29	
Safety capacity of available tanks		[1] 112,661.00	112,661.00	
Excess available tankage over stocks		15,640.94	6,218.71	
Great Belt, Pa.:				
Dates—				
1 Stocks	5,886.82	11,959.44	11,935.86	11,814.64
Safety capacity of available tanks	12,055.00	12,055.00	12,055.00	12,055.00
Excess available tankage over stocks	6,168.18	95.56	119.14	240.36
15 Stocks	11,975.16	11,959.44	11,878.12	11,761.74
Safety capacity of available tanks	12,055.00	12,055.00	12,055.00	12,055.00
Excess available tankage over stocks	79.84	95.56	176.88	293.26
30 Stocks	11,959.44			11,687.38
Safety capacity of available tanks	12,055.00			12,055.00
Excess available tankage over stocks	95.56			367.62
31 Stocks		11,941.10	11,825.22	
Safety capacity of available tanks		12,055.00	12,055.00	
Excess available tankage over stocks		113.90	229.78	
Pine Grove, W. Va.:				
Dates—				
1 Stocks	98,622.27	100,401.72	151,634.92	170,687.33
Safety capacity of available tanks	102,147.00	102,147.00	211,197.00	211,197.00
Excess available tankage over stocks	3,524.73	1,745.28	59,562.08	40,509.67
15 Stocks	98,998.88	101,377.93	184,133.05	183,259.83
Safety capacity of available tanks	102,147.00	102,147.00	211,197.00	211,197.00
Excess available tankage over stocks	3,148.12	769.07	27,063.95	27,937.17
30 Stocks	99,778.17			194,877.41
Safety capacity of available tanks	102,147.00			211,197.00
Excess available tankage over stocks	2,368.83			16,319.59
31 Stocks		149,837.52	171,300.42	
Safety capacity of available tanks		[2] 211,197.00	211,197.00	
Excess available tankage over stocks		61,359.48	39,896.58	
Morgantown, W. Va.:				
Dates—				
1 Stocks	68,044.26	72,110.92	71,958.63	71,689.70
Safety capacity of available tanks	[3] 72,799.00	72,799.00	72,799.00	72,799.00
Excess available tankage over stocks	4,754.74	688.08	840.37	1,109.30
15 Stocks	71,919.77	72,036.53	71,819.34	71,585.84
Safety capacity of available tanks	72,799.00	72,799.00	72,799.00	72,799.00
Excess available tankage over stocks	879.23	762.47	979.66	1,213.16
30 Stocks	72,110.92			71,405.87
Safety capacity of available tanks	72,799.00			72,799.00
Excess available tankage over stocks	688.08			1,393.13
31 Stocks		71,958.63	71,689.70	
Safety capacity of available tanks		72,799.00	72,799.00	
Excess available tankage over stocks		840.37	1,109.30	

[1] New tank added July 17, 1914.
[2] New tanks added July 16 and July 31, 1914.
[3] Put in service April, 1914.

During the year 1914, the South Penn Oil Company purchased from 56 to 100 per cent of the oil produced on the lines of The Buckeye Pipe Line Company, The Eureka Pipe Line Company, and The Cumberland Pipe Line Company. The chief executive of the company, in response to an inquiry as to whether his company had at any time stopped buying all or any part of the crude oil produced in the fields in which its purchases are usually made, replied that—

> We never stopped buying entirely; but during the month of August, 1914, we reduced our purchases to about one-third of the normal production. The reason for this was the European war paralyzed the export business so that we were unable to find a market for our oil. In September we bought the normal production again.

The Producers and Refiners Oil Company purchases all the oil produced by wells to which its lines are connected. This company curtailed the purchase of crude oil during the year 1914, as set forth in the following excerpt from a letter of its treasurer:

> In answer to your letter of April 26 relative to whether this company stopped purchasing all or any part of the crude oil produced in fields in which such purchases are usually made, would state this company purchased only a part of the oil produced in the fields from August 1 to August 3, inclusive, and did not purchase any oil from August 4 to August 14, inclusive, and purchased only a part of the oil produced from August 15 to September 25, on which date it resumed the purchase of all oil that was offered. The purchases were limited as aforesaid for the reason that the company was unable to sell a large part of the oil offered, which condition was no doubt due to the European war which had just started and left the condition of the oil business so uncertain that it became a serious question with the company as to whether or not it would have sufficient storage facilities to take care of the oil produced. Conditions gradually improved so that in opinion of the managers of the company it would be able to take care of the oil produced, and therefore resumed the purchase of all oil offered to it.

The following concerns operating pipe lines and purchasing crude oil in the Midcontinent field curtailed the running and purchasing of oil in 1914: Gulf Pipe Line Company of Oklahoma, Magnolia Pipe Line Company, Magnolia Petroleum Company, The Texas Company (in Oklahoma only). The reasons for this action are set forth in letters of the companies' executives which appear in Appendix IV hereto. Briefly stated, in connection with the Gulf Pipe Line Company of Oklahoma, the Magnolia Pipe Line Company, and The Texas Company, it is averred that the production of oil in parts of Oklahoma exceeded the facilities for handling. The Magnolia Petroleum Company took advantage of a stipulation in its contract with one producing company to stop running its oil from August to November, and advises us that this producing company had facilities for handling its own oil.

The Prairie Oil and Gas Company discontinued the purchasing and running of the oil of independent producers in Oklahoma between September 23 and September 30, 1914. The reasons ascribed for this action are set forth in the subjoined letter from the vice president and general counsel of the company:

INDEPENDENCE, KANS., *June 19, 1915.*

MR. C. E. MOSSER,
Interstate Building, Washington, D. C.

MY DEAR SIR: Herewith find answer to your question of May 19th, 1915.

Question. Will you please advise me, at your early convenience, if at any time during the year 1914 your company stopped purchasing all or any part of the crude petroleum produced in the territory to which its lines are connected, and if so, will you please give the reasons for refusal to purchase such crude petroleum, and what effect, in your opinion, such refusal had upon the oil industry, especially upon property already developed in the territory covered by the operations of your company?

Answer. On September 22, 1914, the board of directors of the Prairie Oil and Gas Company, after careful consideration of its business and the producing and marketing conditions prevailing in the Midcontinent field, determined that it could not afford to pay more than 55 cents per barrel for crude oil and issued instructions to its purchasing agent by resolution of the directors as follows:

> ***Be it resolved*, That E. T. Patterson, as treasurer and purchasing agent of this company, be, and he is hereby, directed to post and pay for all oil purchased by this company in the Midcontinent field on this 22d**

day of September, 1914, and thereafter until otherwise directed by this board of directors, or J. E. O'Neil, its president, 55 cents per barrel.

After such price was announced and established by the Prairie Oil and Gas Company, and on the same day, the Corporation Commission of the State of Oklahoma issued its order in relation to the production, sale, and purchase of crude oil within the state of Oklahoma in words and figures following, to wit:

It is hereby ordered, That all producers shall not take more oil from their wells than can be sold upon the market at 65 cents per barrel, or stored in regulation steel tankage, until the 1st day of October, 1914; that the rules and regulations for the curtailing of the production will be considered by the Commission at the hearing on September 28, at which time it will be determined how long the price shall continue at 65 cents per barrel with a view of raising the same to 75 cents per barrel, the basis which the commission has found to be just to prevent waste. The commission will also consider rules and regulations with reference to storing oil with a view of limiting the storing to a minimum amount.

It is further ordered, That no common purchaser or other purchaser of crude oil in the state of Oklahoma shall buy oil at a price less than 65 cents per barrel until further ordered by the commission.

For the hearing of September 28, the commission suggests that the business interests, including the oil producers as well as other affiliated interests, give full consideration to the plan outlined; that is, the curtailing of production to the reasonable market demands and in what manner this can best be done, that the commission may have the benefit of their business judgment. The commission can give but little consideration to the opinions based upon self-interests alone, but invites a consideration of the subject from a broad public and business standpoint with that iron will of determination that characterized Andrew Jackson.

In witness whereof, We have hereunto set our hands and affixed the seal of the commission this the 22d day of September, A. D. 1914.

The substance of this order was published in the newspapers immediately and communicated by telephone from the office of the corporation commission at Oklahoma City to the Prairie Oil and Gas Company, and after due consideration, on the 23d of September, 1914, the matter was given consideration by the board of directors of the Prairie Oil and Gas Company duly convened, and the following resolution adopted, to wit:

Whereas, The Corporation Commission of the State of Oklahoma has heretofore issued its order prohibiting any person, firm, or corporation from purchasing oil in the state of Oklahoma at a price less than 65 cents per barrel; and

Whereas, we are advised by W. S. Fitzpatrick, our general counsel, that to purchase oil within the state of Oklahoma as we are now doing at the price of 55 cents per barrel would be a violation of the terms of said order, and probably cause this company to be drawn into litigation with the officers of the state of Oklahoma and such unfriendly producers as might see fit to insist that the Oklahoma Corporation Commission had a right to fix the price at which crude oil should be sold in the state of Oklahoma; and

Whereas, after full discussion of the producing and marketing conditions in Oklahoma and such places as Oklahoma oil can be marketed, we are of the opinion that this company can not afford to pay for crude oil at the price fixed by such order of the Oklahoma Corporation Commission:

Now, therefore, be it resolved, That E. T. Patterson, treasurer and oil-purchasing agent of this company, be, and he is hereby, instructed to purchase no more oil from wells situated in the state of Oklahoma until otherwise directed by this board of directors, or until such time as oil may be purchased at the price offered by this company in the usual manner and course of business without violation of any existing law or order of the Corporation Commission of the State of Oklahoma; and

Be it further resolved, That W. F. Gates, superintendent of the pipe lines of this company, be, and he is hereby, directed to run no oil from wells or tanks situated in the state of Oklahoma and owned by any person other than the Prairie Oil and Gas Company until ordered and directed so to do by the president of this company.

From and after the passage of this resolution the Prairie Oil and Gas Company discontinued purchasing oil in the state of Oklahoma until about the 30th day of September, when the Corporation Commission of Oklahoma modified its order as hereinbefore set out in such manner as allowed this company to purchase oil at 55 cents per barrel without violating the order of said commission. Immediately upon such modification this company resumed purchasing oil in that state as it had theretofore done and has continued so to do down to the present time.

We do not think that our action in this matter had any effect on the production in the Midcontinent field, the time being so short before we again entered the market as a purchaser of oil.

Yours, very truly,

W. S. Fitzpatrick.

APPENDIX I.

Resolution of the Senate of the United States, dated September 28, 1914, requesting the Interstate Commerce Commission to investigate the several phases of the crude-petroleum industry.

Resolved, That the Interstate Commerce Commission be requested to make thorough investigation of the conditions prevailing and that have prevailed in the states of New York, Pennsylvania, West Virginia, Oklahoma, and Ohio, or elsewhere, affecting the production, transportation, and marketing of crude petroleum, with especial reference to the manner in which the market for same has been created, maintained, and controlled, and by whom, and the effect of such market and the maintenance and control thereof upon the inducement of capital to seek investment in the oil business, and especially in the development of new fields.

Said Commission shall also ascertain what connection or relation of any kind has existed or now exists between or among any two or more of the pipe-line companies which have been or are now transporting crude oil within said fields, together with what, if any, common ownership, interest, or control has at any time existed or now exists between such pipe lines or any of them, and the various agencies that have purchased crude oil in said states since 1890, and what disposition such agencies have made of the crude oil so purchased, and to whom it has been turned over for refining and manufacture, and under what conditions, with the object of ascertaining for the information of the Senate whether the charge is true that substantially the same interests have operated the pipe lines, made the market, bought the crude oil, refined it, and fixed the price of the refined products, and whether in such respect the laws of the United States have been violated.

Said Commission shall also inquire into and ascertain if it is true that said pipe-line companies or any of them have recently stopped taking all or any part of the crude oil produced by independent producers into tanks to which such pipe-line companies have connected their pipe lines, and whether it is true that said purchasing agencies or any of them have recently stopped purchasing all or any part of the crude oil so produced by independent producers in said states, together with any information the Commission may be able to obtain as to the reasons for such refusal to run and purchase oil, and what effect the same is having upon the oil industry and especially properties already developed in the states named.

Said Commission shall report to the Senate its findings, together with the evidence taken, when its work hereunder is completed.

APPENDIX II.

Deliveries of crude oil by pipe lines.

THE BUCKEYE PIPE LINE COMPANY.

	1897		1898		1899	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Henry Lewis	18,926,732.42	99.37	8,682,552.84	51.89		
James McGee			3,659,210.57	21.87		
P. S. Trainor			2,946,491.58	17.61	18,045,874.32	96.0
H. H. Moody	2,000.00	.01	300.00			
Secor & Bell			25.00			
Montgomery & Stitt			1,777.98	.01		
P. J. Poole			1,295.93	.01		
Standard Oil Co. (Ohio)	119,000.00	.62	1,440,000.00	8.61	728,000.00	3.8
The East Side Bank Co					1,200.00	.0
E. T. Mitchell					3,847.87	.0
First National Bank of Findlay					8,000.00	.04
C. D. Baxter			815.17			
The Warner Oil Co			115.73			
George Kalb					677.09	
R. J. Cooper					5.61	
Oil purchase account					95.01	
Total	19,047,732.42	100.00	16,732,584.80	100.00	18,787,699.90	100.0

	1900		1901		1902	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
P. S. Trainor	19,094,146.39	95.02	18,359,120.18	95.08	16,964,138.24	93.79
Standard Oil Co. (Ohio)	999,500.00	4.97	947,000.00	4.90	1,123,000.00	6.21
E. B. Mitchell			3,176.05	.02		
M. D. Show	895.88	.01				
F. M. Bell			881.26			
James H. Baker			14.90			
W. H. Dufur	250.00					
Pennsylvania Title & Trust Co			5,207.07	.03		
C. C. Lawson			3.86			
G. C. Best, jr			3,510.69	.02		
Total	20,094,792.27	100.00	19,318,914.01	100.00	18,087,138.24	100.00

	1903		1904	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.				
P. S. Trainor	18,038,309.37	98.21	16,071,531.73	98.5
Standard Oil Co. (Ohio)	329,476.31	1.79	230,000.00	1.41
C. C. Lawson	71.41			
Total	18,367,857.09	100.00	16,301,531.73	100.00

Deliveries of crude oil by pipe lines—Continued.

THE BUCKEYE PIPE LINE COMPANY—Continued.

	1905		1906	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.				
P. S. Trainor	13,222,003.81	97.76	9,349,024.26	87.66
Standard Oil Co. (Ohio)	301,000.00	2.22	434,000.00	4.07
Solar Refining Co			831,386.01	7.80
Craig Oil Co			50,000.00	.47
The Ohio Oil Co			341.88	
P. R. Ballinger	200.00			
P. M. Sharp	2,246.15	.02		
Total	13,525,449.96	100.00	10,664,752.15	100.00

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
P. S. Trainor	7,486,183.70	90.61	6,635,258.99	88.45	7,035,640.30	88.57
Standard Oil Co. (Ohio)	354,000.00	4.28	504,000.00	6.72	420,599.25	5.29
Solar Refining Co	252.45				79,834.97	1.01
Craig Oil Co	420,000.00	5.09	360,000.00	4.80	405,000.00	5.10
The Ohio Oil Co	1,741.44	.02	2,335.09	.03	1,646.84	.02
Wyandotte Refineries Co					700.00	.01
Total	8,262,177.59	100.00	7,501,594.08	100.00	7,943,421.36	100.00
DELIVERIES.[1]						
Atlantic Refining Co., Marcus Hook, Pa	598,149.54	5.95				
Atlantic Refining Co., Philadelphia, Pa	3,034,669.87	30.17	2,413,618.58	25.20	2,879,031.75	35.92
Atlantic Refining Co., Franklin, Pa	74,398.13	.74	490,936.69	5.12	594,176.77	7.41
Atlantic Refining Co., Pittsburgh, Pa	5,540.89	.06	8,222.55	.09	5,452.24	.07
Craig Oil Co., Toledo, Ohio	414,659.12	4.12	360,159.98	3.76	406,545.98	5.07
Delivered to wagon			1.36			
Freedom Oil Works, Freedom, Pa			870.21	.01		
Hurling Oil Works, Marietta, Ohio	42,072.24	.42	24,414.22	.26	48,022.41	.60
Solar Refining Co., Lima, Ohio	52,585.55	.52	9.88		1,630.10	.02
Standard Oil Co. Works No. 1, Cleveland, Ohio			863.52	.01		
Standard Oil Co. Works No. 2, Lodi, Ohio	1,581.47	.02	1,260.97	.01	79,837.42	1.00
Standard Oil Co. (Ohio), Cleveland, Ohio	353,302.68	3.51	443,956.39	4.63	420,599.25	5.25
Standard Oil Co. (New Jersey), Unionville, N. Y	5,030,174.69	50.01	5,757,063.06	60.11	3,272,796.31	40.84
Standard Oil Co. (New Jersey), Centerbridge, Pa	447,750.00	4.45	74,625.00	.78		
Standard Oil Co. of New York, Olean, N. Y					303,185.35	3.78
Standard Oil Co. (New Jersey), Parkersburg, W. Va	2,279.71	.02	2,166.08	.02	1,669.94	.02
Standard Oil Co., Whiting, Ind	586.46	.01				
Wyandotte Refining Co., Crawford, Ohio					1,698.46	.02
Total	10,057,750.35	100.00	9,578,168.49	100.00	8,014,645.98	100.00

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[1] Information can not be secured prior to 1907.

Deliveries of crude oil by pipe lines—Continued.

THE BUCKEYE PIPE LINE COMPANY—Continued.

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
[illegible]	6,632,432.47	86.46	5,625,556.90	83.60	....	....
[illegible] Oil Co.	....	....	110,356.09	1.64	4,019,441.74	58.90
[illegible] Oil Co. (Ohio)	586,200.00	7.64	453,870.08	6.74	....	....
[illegible] Refining Co.	60,633.25	.79	41,210.79	.61	2.38	....
[illegible] Co.	385,000.00	5.02	345,000.00	5.13	35,000.00	.51
[illegible] Oil Co.	1,103.18	.01	147,440.12	2.19	2,769,577.99	40.59
Wyandotte Refineries Co.	5,750.00	.08	6,000.00	.09	....	....
Total	7,671,118.90	100.00	6,729,433.98	100.00	6,824,022.11	100.00
DELIVERIES.						
Atlantic Refining Co., Philadelphia, Pa.	3,377,552.43	48.61	2,856,113.98	35.66	3,369,182.61	47.76
Atlantic Refining Co., Franklin, Pa.	221,308.74	3.19	158,938.86	1.98	99,490.55	1.41
Atlantic Refining Co., Pittsburgh, Pa.	2,093.65	.03	2,363.93	.03	1,868.58	.03
Craig Oil Co., Toledo, Ohio	383,788.49	5.52	355,349.26	4.44	369,169.64	5.23
Hurling Oil Works, Marietta, Ohio	46,243.73	.66	31,609.82	.39	82,895.41	1.18
Imperial Oil Co., Ltd	....	....	....	....	11.25	....
Marr, Chas. H., agent	....	....	....	....	370.62	....
Solar Refining Co., Lima, Ohio	1,133.57	.02	2,055.97	.03	2,778.29	.04
Standard Oil Co. Works No. 2, Lodi, Ohio	60,633.25	.87	29,398.35	.37	59.61	....
Standard Oil Co. (Ohio), Cleveland, Ohio	586,198.60	8.44	702,286.09	8.77	1,150,012.32	16.30
Standard Oil Co. (New Jersey), Unionville, N. Y	1,943,815.31	27.98	3,445,498.14	43.02	1,575,512.91	22.33
Standard Oil Co. (New Jersey), Centerbridge, Pa.	....	....	149,250.00	1.86	155,000.00	2.20
Standard Oil Co. of New York, Olean, N. Y	317,418.26	4.57	268,590.29	3.35	246,006.25	3.49
Standard Oil Co. (New Jersey), Parkersburg, W. Va.	2,155.77	.03	1,549.97	.02	145.55	....
Wyandotte Refining Co., Crawford, Ohio	5,751.13	.08	5,998.44	.08	1,800.89	.03
Total	6,948,092.93	100.00	8,009,008.10	100.00	7,054,304.48	100.00

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.				
South Penn Oil Co.	3,618,217.02	57.13	3,485,310.06	56.28
The Ohio Oil Co.	2,714,596.30	42.87	2,707,175.81	43.72
Total	6,332,813.32	100.00	6,192,485.87	100.00
DELIVERIES.				
Atlantic Refining Co., Philadelphia, Pa.	1,428,942.30	21.11	75,018.79	1.33
Atlantic Refining Co., Franklin, Pa.	212,538.66	3.14	13,786.26	.25
Atlantic Refining Co., Pittsburgh, Pa.	2,474.27	.04	1,933.37	.04
American Refining Co., Franklin, Pa.	3.57	....	....	....
Craig Oil Co., Toledo, Ohio	366,452.66	5.41	348,731.48	6.19
Hurling Oil Works, Marietta, Ohio	21,718.02	.32	....	....
Imperial Oil Co., Ltd	331,771.47	4.90	1,533,306.23	27.22
Marr, Chas. H., agent	1,408.74	.02	....	....
Standard Oil Co. Works No. 2, Lodi, Ohio	18.02	....	205,118.58	3.64
Standard Oil Co. (Ohio), Cleveland, Ohio	450,051.64	6.65	....	....
Standard Oil Co. (New Jersey), Unionville, N. Y	2,200,199.56	32.51	600,037.37	10.65
Standard Oil Co. (New Jersey), Centerbridge, Pa.	1,428,112.83	21.10	1,291,837.98	22.93
Standard Oil Co. of New York, Olean, N. Y	145,815.46	2.15	....	....
Standard Oil Co. (New Jersey), Olean, N. Y	....	....	518,929.83	9.21
Standard Oil Co. (New Jersey), Bayonne and Bayway, N. J	....	....	448,603.32	7.96
Standard Oil Co. (New Jersey), Parkersburg, W. Va.	1.19	....	....	....
South Penn Oil Co., Philadelphia, Pa.	....	....	29,776.90	.53
Standard Oil Co., Bayonne, N. J	5.95	....	....	....
Vacuum Oil Co., Olean, N. Y	179,065.13	2.65	565,942.32	10.05
Total	6,768,579.47	100.00	5,633,022.43	100.00

Deliveries of crude oil by pipe lines—Continued.

THE EUREKA PIPE LINE COMPANY.

	1892		1893		1894	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
Henry Lewis	3,432,701.11	100.00	7,414,204.43	100.00	8,006,804.18	100.00

	1895		1896		1897	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Henry Lewis	7,438,166.60	100.00	9,811,997.11	100.00	12,134,410.47	99.52
G. B. West					375.00	
Andy Brunner					514.04	
A. C. Jackson					13,996.32	.12
E. A. Durham					11,760.96	.10
E. H. Jennings & Bros					29,696.86	.24
Taylor Co. Bank					2,000.00	.02
Total	7,438,166.60	100.00	9,811,997.11	100.00	12,192,753.65	100.00

	1898		1899		1900	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Henry Lewis	7,791,054.81	57.11				
Jas. McGee	3,347,634.36	24.54				
P. S. Trainor	2,441,355.11	17.90	13,978,483.26	99.93	16,414,445.74	100.00
G. B. West	2,032.06	.01				
A. C Jackson	3.68					
E. H. Jennings & Bros	45,652.64	.34				
Taylor Co. Bank	500.00					
Cornwall & Reed	301.15		3,397.98	.02		
Farmers and Producers Bank	5,655.59	.04				
E. R. Kemp	77.82					
J. R. Campbell	7,437.14	.06				
C. S. Ritchie	562.74					
W. C. Kennedy			7,200.00	.05		
Total	13,642,267.10	100.00	13,989,081.24	100.00	16,414,445.74	100.00

	1901		1902		1903	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
P. S. Trainor	14,217,496.94	99.98	12,811,739.23	100.00	12,514,488.11	100.00
G. C. Best	3,496.60	.02				
Total	14,220,993.54	100.00	12,811,739.23	100.00	12,514,488.11	100.00

	1904		1905		1906	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
P. S. Trainor	12,088,390.69	100.00	11,084,805.25	100.00	9,606,142.86	100.00

Deliveries of crude oil by pipe lines—Continued.

THE EUREKA PIPE LINE COMPANY—Continued.

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
P. S. Trainor	8,444,387.49	100.00	8,723,553.12	100.00	10,058,118.23	100.00
DELIVERIES.						
Standard Oil Co. (New Jersey), Centerbridge, Pa	3,529,048.24	42.27	4,922,530.72	57.07	6,592,992.68	66.88
Standard Oil Co. of New York, Olean, N. Y					1,233,690.22	12.52
Standard Oil Co. (New Jersey), Parkersburg, W. Va	941,542.24	11.28	854,430.66	9.91	553,074.54	5.61
Atlantic Refining Co., Franklin, Pa	928,884.82	11.12	950,063.62	11.01	842,665.09	8.55
Atlantic Refining Co., Philadelphia, Pa	2,949,391.72	35.33	1,898,124.10	22.01	633,259.59	6.42
Atlantic Refining Co., Pittsburgh, Pa					2,355.52	.02
Total	8,348,867.02	100.00	8,625,149.10	100.00	9,858,037.64	100.00

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
P. S. Trainor	10,953,292.32	100.00	8,734,579.59	94.41		
Pure Oil Co			123,000.00	1.33		
South Penn Oil Co			393,746.45	4.26	11,203,136.44	100.00
Total	10,953,292.32	100.00	9,251,326.04	100.00	11,203,136.44	100.00
DELIVERIES.						
Standard Oil Co. (New Jersey), Centerbridge, Pa	6,308,861.15	56.49	4,961,628.53	54.53	6,003,966.55	53.00
Standard Oil Co. of New York, Olean, N. Y	2,376,936.98	21.29	120,622.80	1.33	600,000.00	5.30
Standard Oil Co. (New Jersey), Parkersburg, W. Va	908,281.66	8.13	835,116.78	9.18	937,585.92	8.28
Vacuum Oil Co., Olean, N. Y					75,000.00	.66
Atlantic Refining Co., Franklin, Pa	804,127.83	7.20	717,848.13	7.89	924,521.04	8.16
Atlantic Refining Co., Philadelphia, Pa	764,293.99	6.84	1,955,175.00	21.49	1,757,758.75	15.51
Atlantic Refining Co., Pittsburgh, Pa			349,426.45	3.84	334,266.94	2.95
Pure Oil Co., Parkersburg, W. Va			157,701.23	1.73	687,082.22	6.06
Miscellaneous small sales					69.72	
Fire loss	5,658.02	.05	483.63	.01	8,770.04	.08
Total	11,168,159.63	100.00	9,098,002.55	100.00	11,329,021.19	100.00

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.				
South Penn Oil Co	11,033,757.34	100.00	9,046,405.34	100.00
Cushing & Cushing	24.00			
Philadelphia Co	34.52		23.80	
Hope Natural Gas Co	1.43		4.76	
Total	11,033,817.29	100.00	9,046,433.90	100.00

Deliveries of crude oil by pipe lines—Continued.

THE EUREKA PIPE LINE COMPANY—Continued.

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
DELIVERIES.				
Standard Oil Co. (New Jersey), Centerbridge, Pa.	4,912,962.33	45.67	2,409,612.06	27.56
Standard Oil Co. (New Jersey), Bayonne, N. J.			1,896,375.57	21.68
Standard Oil Co. of New York, Olean, N. Y.	160,000.00	1.49	196,541.49	2.25
Standard Oil Co. (New Jersey), Parkersburg, W. Va.	822,681.86	7.65	858,870.37	9.82
Vacuum Oil Co., Olean, N. Y.	640,000.00	5.95	540,000.00	6.17
Atlantic Refining Co., Franklin, Pa.	1,605,584.55	14.92	892,015.07	10.20
Atlantic Refining Co., Philadelphia, Pa.	2,214,234.59	20.58	1,744,997.38	19.95
Atlantic Refining Co., Pittsburgh, Pa.	361,373.03	3.37	167,758.58	1.92
South Penn Oil Co., Lacy Station, Pa.			24,750.00	.28
High Grade Products Co., St. Marys, W. Va.			14,484.82	.17
Pure Oil Co., Parkersburg, W. Va.	40,232.34	.37		
Miscellaneous small sales	59.95		28.56	
Total	10,757,128.65	100.00	8,745,433.90	100.00

GULF PIPE LINE COMPANY.

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Total purchases of Gulf Pipe Line Co.	6,625,539.80	98.60	8,553,726.66	93.99	8,548,851.67	97.40
Security Oil Co.			249,976.59	2.75		
Miscellaneous purchases	93,738.42	1.40	296,924.66	3.26	226,954.74	2.60
Total	6,719,278.22	100.00	9,100,627.91	100.00	8,775,806.41	100.00
DELIVERIES.[1]						
Gulf Refining Co.	1,595,144.99	74.30	5,326,083.64	66.62	7,719,895.11	82.72
Gulf Pipe Line Co., car and barge shipments of fuel oil sold by sales department:						
Houston					308,345.41	3.30
Sour Lake	203,165.21	9.46	326,218.61	4.08	117,189.97	1.26
Saratoga	10,315.36	.48	28,341.62	.36	3,884.35	.04
Humble	113,392.57	5.28	808,979.68	10.12	503,662.84	5.40
Lucas	978.33	.05	450,037.80	5.63	1,613.93	.02
Rice farmers	509.40	.02	125.79		445.07	
Oil for vessels	55,886.02	2.60	165,631.05	2.07	193,827.38	2.08
Port Arthur			3,828.22	.05	887.39	.01
Bowers Southern Dredging Co.	520.26	.02	5,689.24	.07	49,410.05	.53
Sundry car shipments	93,738.42	4.37	296,924.66	3.71	226,954.74	2.43
Tickicide Oil	5.00					
Rio Bravo Oil Co. (Southern Pacific Co.)	69,250.68	3.23	254,598.85	3.19		
J. M. Guffey Petroleum Co.	1,458.99	.07	2,832.50	.04	74.06	
Gulf Refining Co. of Louisiana.	1,983.91	.09	12,338.18	.15	155,583.99	1.67
Myrick Bros., Port Arthur	134.87	.01	2,710.78	.03		
Port Arthur Rice Mills	423.74	.02	2,041.92	.03		
Dredge Excavator			1,534.35	.02		
Lutcher-Moore Lumber Co.			269.64			
Chas. Clarke & Co.			289.22			
Myrick Transfer Co.			115.61			
Port Arthur Rice Irrigating Co.			11,036.12	.14		
Chas. Trice Grain Co.			2.45			
Bingham Bros			250.25			
Inturrios Mercantile Co.			3.31			
W. A. Guyton & Co.			16,289.98	.20		
E. F. Lyons			480.69	.01		
Beaumont Irrigating Co.			5.07			
Security Oil Co.			249,976.59	3.13		
Kansas City Southern Ry.			99.00		73.50	
Port Arthur vessels			27,704.58	.35		
Beaumont Machine Works					129.04	
Sales department, Gulf Pipe Line Co., J. Sealy					49,998.68	.54
Total	2,146,907.75	100.00	7,994,439.40	100.00	9,331,975.51	100.00

[1] Includes oil produced on lines of Gulf Pipe Line Co., Gulf Pipe Line Co. of Oklahoma, and Gulf Refining Co. of Louisiana.

Deliveries of crude oil by pipe lines—Continued.

GULF PIPE LINE COMPANY—Continued.

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Total purchases of Gulf Pipe Line Co	3,789,328.61	98.85	4,644,371.36	99.01	4,678,743.13	99.23
Miscellaneous purchases	44,015.33	1.15	46,288.38	.99	36,428.17	.77
Total	3,833,343.94	100.00	4,690,659.74	100.00	4,715,171.30	100.00
DELIVERIES.						
Gulf Refining Co	9,622,490.33	79.00	10,364,372.48	72.62	11,061,962.32	76.04
Gulf Pipe Line Co., car and barge shipments of fuel oil sold by sales department:						
Houston	1,403,107.37	11.52	1,740,575.05	12.20	1,772,561.57	12.18
Wagons					275.11	
Sour Lake	3,837.91	.03				
Saratoga	534,647.85	4.39	934,501.34	6.55	702,859.34	4.83
Humble	111,387.21	.91	76,603.52	.54	79,598.16	.55
Lucas	1,015.22	.01	246,973.01	1.73	177,995.65	1.22
Fort Worth					431,203.50	2.96
Rice farmers	315.85		431.73		237.17	
Oil for vessels	51,415.75	.42				
Sundry car shipments	44,015.33	.36	46,288.38	.32	36,428.17	.25
Rio Bravo Oil Co. (Southern Pacific Co.)	121,207.99	1.00	130,368.06	.91	1,452.87	.01
J. M. Guffey Petroleum Co			13,213.76	.09	54,464.62	.37
Gulf Refining Co. of Louisiana			145,936.71	1.02	71,741.56	.49
W. A. Guyton & Co			5,782.75	.04		
Beaumont Irrigating Co	18,003.67	.15				
Beaumont Machine Works	142.45					
Sales department, Gulf Pipe Line Co., J. Sealy	262,663.08	2.16	36,051.94	.25		
Freehold Oil Co	799.07	.01	753.46	.01		
Moores Bluff Canal Co	5,337.69	.04			11,088.69	.08
D. M. Watson	350.73		25.04			
Moores Bluff Rice Co			9,683.99	.07		
Magnolia Petroleum Co			499,904.58	3.50		
Caddo Lake Oil Co			377.48	.01		
Pierce-Fordyce Oil Co			20,509.06	.14		
Mila Oil Co			144.08			
Gordon Oil Co					671.55	.01
Caddo Orchard Co					9.64	
Armour & Co., Fort Worth					136,840.59	.94
Swift & Co					1,358.45	.01
Humble Oil Co					150.12	
Southwestern Mechanical Co					5,436.07	.04
Pine Island Oil Co					263.68	.01
Cobb Brick Co					70.54	
Big Three Oil Co					210.26	
Vim Oil Co					232.67	
Buchannon & Fitzsimmons					257.55	
J. P. Barkley					148.98	
Miriam Oil Co					117.88	
Bradley Bros					172.07	
E. C. Weiss					17.16	
Mack Brooks					2.25	
Higgins Oil & Fuel Co					509.92	.01
Sam Rosen					6.30	
Total	12,180,737.50	100.00	14,272,496.42	100.00	14,548,344.41	100.00

Deliveries of crude oil by pipe lines—Continued.

GULF PIPE LINE COMPANY—Continued.

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.				
Total purchases of Gulf Pipe Line Co	5,963,587.98	99.81	6,932,544.86	99.81
Miscellaneous purchases	11,054.78	.19	13,422.20	.19
Total	5,974,642.76	100.00	6,945,967.06	100.00
DELIVERIES.				
Gulf Refining Co	12,075,265.25	81.47	12,940,802.65	81.48
Gulf Pipe Line Co., car and barge shipments of fuel oil sold by sales department:				
Houston	1,140,658.07	7.70	883,624.85	5.56
Wagons			13,894.92	.09
Sour Lake			155.24	
Saratoga	662,827.21	4.47	569,099.72	3.58
Humble	5,496.29	.04		
Lucas	169,837.79	1.15	215,757.83	1.36
Fort Worth	640,531.84	4.32	395,244.15	2.49
Goose Creek	50,522.47	.34	18,641.92	.12
Rice farmers	194.74		353.59	
Sundry car shipments	11,054.78	.07	13,422.20	.09
Rio Bravo Oil Co. (Southern Pacific Co.)			360,098.76	2.27
J. M. Guffey Petroleum Co	50,979.96	.34	40,810.20	.26
Gulf Refining Co. of Louisiana			13,047.27	.08
Beaumont Machine Works	7.14			
Moores Bluff Canal Co	12,032.47	.08	9,917.18	.06
Magnolia Petroleum Co			203,486.44	1.28
Armour & Co., Fort Worth			177,053.53	1.12
Swift & Co			832.65	.01
Southwestern Mechanical Co			9,659.85	.06
J. P. Barkley	436.05	.02	543.36	
Higgins Oil & Fuel Co	242.52			
Gulf, Colorado & Santa Fe Ry	189.83			
Lake Petroleum Co	329.58			
Saratoga Light & Water Co	165.65		700.54	.03
Saratoga Iron Works	75.56		279.83	
Merrimac Oil Co	558.63		67.00	
F. E. Bentley	152.13			
Yout & Bevito	249.31		22.14	
Primrose Oil Co	216.10		343.42	
Greyburg Oil Co			286.23	
Hornsby Oil Co			746.88	
Weldon Oil Co			216.00	
Long Oil Co			589.40	
Theis Oil Co			840.88	
Lake Graham Oil Co			906.11	
Harper Oil Co			348.13	
W. C. Turnbow			1,013.70	.01
Thompson Moon Oil Co			180.06	.01
Marion Oil Co			489.80	
T. S. Crosbie			575.00	
D. W. Piland			110.58	
Fort Worth Cotton Oil Co			5,384.90	.03
Rogers Oil & Gas Co			443.42	
Dixie Refining Co			1,432.48	.01
Tarrant Co			57.26	
Total	14,822,023.37	100.00	15,881,480.07	100.00

INDIANA PIPE LINE COMPANY.

	1898		1899		1900	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Henry Lewis	1,519,154.82	59.30				
P. S. Trainor	1,042,501.06	40.70	2,762,333.09	99.64	4,470,272.82	100.00
C. A. Post and A. E. Convers			10,000.00	.36		
Total	2,561,655.88	100.00	2,772,333.09	100.00	4,470,272.82	100.00

Deliveries of crude oil by pipe lines—Continued.

INDIANA PIPE LINE COMPANY—Continued.

	1901		1902		1903	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
P. S. Trainor	5,721,832.82	100.00	7,281,425.92	100.00	9,319,187.73	100.00

	1904		1905		1906	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
P. S. Trainor	11,178,325.32	100.00	10,908,953.32	100.00	8,025,271.44	100.00

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
P. S. Trainor	5,069,645.50	100.00	3,289,004.12	100.00	2,231,750.38	100.00
DELIVERIES.						
Standard Oil Co. (New Jersey), Unionville, N. Y	4,703,490.34	92.30	3,115,084.02	96.35	2,246,189.07	100.00
Atlantic Refining Co., Marcus Hook, Pa	298,979.19	5.86				
Standard Oil Co. (Indiana), Whiting, Ind	78,197.25	1.54	25,495.08	.79		
Solar Refining Co., Lima, Ohio	526.02	.01				
American Window Glass Co	14,524.16	.29	5,506.15	.17		
Standard Oil Co. (New Jersey), Centerbridge, Pa			87,130.63	2.69		
Total	5,095,716.96	100.00	3,233,215.88	100.00	2,246,189.07	100.00

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
P. S. Trainor	1,494,365.67	100.00	1,083,520.30	98.91		
The Ohio Oil Co			11,879.23	1.09	742,306.25	100.00
Total	1,494,365.67	100.00	1,095,399.53	100.00	742,306.25	100.00
DELIVERIES.						
Standard Oil Co. (New Jersey), Unionville, N. Y	1,511,516.40	100.00	1,196,737.46	99.61	715,057.48	100.00
Standard Oil Co. (Indiana), Whiting, Ind			4,615.28	.39		
Total	1,511,516.40	100.00	1,201,352.74	100.00	715,057.48	100.00

Deliveries of crude oil by pipe lines—Continued.

INDIANA PIPE LINE COMPANY—Continued.

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.				
The Ohio Oil Co	637,498.64	100.00	515,205.50	100.00
DELIVERIES.				
Standard Oil Co. (New Jersey), Unionville, N. Y	640,352.76	100.00	205,960.52	100.00

MAGNOLIA PETROLEUM COMPANY.

	1911		1912		1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.								
Magnolia Petroleum Co	1,114,338.14	100.00	2,491,849.54	100.00	3,679,149.81	100.00	4,723,897.47	100.00
DELIVERIES.								
Magnolia Petroleum Co	1,114,338.14	100.00	2,491,849.54	100.00	3,679,149.81	100.00	4,723,897.47	100.00

NATIONAL TRANSIT COMPANY.

	1899		1900		1901	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
P. S. Trainor	6,889,761.28	98.41	7,035,217.31	98.42	6,184,804.62	99.06
Joseph Seep	100,772.65	1.44	105,096.97	1.47	32,884.58	.53
Overdrafts and corrections [1]	[2] 486.71		[2] 684.82	[2] .01	[2] 216.16	
E. E. Abrams	652.47	.01				
E. M. Atwell	85.43					
Bradford National Bank					257.53	
B. L. Brinton					1,348.27	.02
Coldwater Oil Co			144.71			
Glade Oil Works	46.53		77.46		33.26	
F. R. Green	712.90	.01				
Hittenbaugh Oil Co	280.48		727.35	.01		
William Kennedy	1,300.00	.02				
S. C. Lewis			143.93			
I. Marks	273.75					
Minerva Oil Co	2,489.06	.04	2,024.98	.03		
Northern Pipe Line	1,506.38	.02	1,066.48	.01	825.71	.01
Pennsylvania Lubricating Co			86.26		172.52	
Slickford Oil Co			578.56	.01	974.53	.02
Titusville Oil Works			1,599.80	.02		
United National Gas Co	1,803.94	.03	1,151.57	.02	604.34	.01
E. M. Whippo	1,333.80	.02				
Fire losses			719.61	.01	1,553.64	.02
Over and short, Union Pipe Line division					221.94	
Sundry small purchasers	443.66		481.49	.01		
Closing out K. T. division from National Transit Co. books to Cumberland Pipe Line Co.					19,087.96	.31
Total	7,000,975.62	100.00	7,148,431.66	100.00	6,242,552.74	100.00

[1] Clerical errors in entries and reports.

[2] Deduction.

Deliveries of crude oil by pipe lines—Continued.

NATIONAL TRANSIT COMPANY—Continued.

	1902		1903		1904	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
P. S. Trainor	5,630,438.28	99.56	5,833,366.12	98.84	5,161,357.51	99.08
Joseph Seep	22,910.90	.41	39,000.00	.66		
Overdrafts and corrections[1]	[2] 2,934.43	[2] .05	[2] 706.83	[2] .01	[2] 893.74	[2] .02
Glade Oil Works	36.78		32.84		402.20	.01
F. R. Green					12.02	
Kendall Refining Co	1,803.75	.03				
Northern Pipe Line	447.10	.01	182.69	.01	212.64	
Pennsylvania Lubricating Co.	95.00					
United National Gas Co	420.83		246.27		135.05	
Vacuum Oil Co			668.14	.01	36,197.40	.70
S. M. Willock			28,966.37	.49	12,000.00	.23
Fire losses	2,415.45	.04				
Sundry small purchasers	90.30					
Total	5,655,723.96	100.00	5,901,755.60	100.00	5,209,423.08	100.00

	1905		1906	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.				
P. S. Trainor	4,866,325.28	98.89	4,892,461.16	99.14
Overdrafts and corrections[1]	[2] 1,237.41	[2] .03	[2] 734.26	[2] .01
United National Gas Co	144.23		1,810.29	.04
Vacuum Oil Co	56,347.55	1.14	40,894.15	.83
Total	4,921,579.65	100.00	4,934,431.34	100.00

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
P. S. Trainor	4,620,318.49	99.97	4,398,163.42	100.00	4,415,845.23	100.02
Overdrafts and corrections[1]	[2] 941.49	[2] .02	[2] 940.48	[2] .02	[2] 880.98	[2] .02
United National Gas Co	2,304.43	.05	1,090.77	.02		
Total	4,621,681.43	100.00	4,398,313.71	100.00	4,414,964.25	100.00
DELIVERIES.						
Conewango Refining Co., Warren, Pa	102,522.57	2.02	103,737.00	2.35	103,802.35	2.84
Cornplanter Refining Co., Warren, Pa	141,514.85	2.78	141,189.61	3.20	136,444.96	3.74
Glade Oil Works, Warren, Pa.	137,731.85	2.71	138,455.38	3.14	138,372.27	3.79
Seneca Oil Works, Warren, Pa	174,329.43	3.43	174,231.37	3.95	172,776.52	4.73
Superior Oil Works, Warren, Pa	94,558.74	1.86	95,497.42	2.17	97,991.22	2.68
Warren Refining Co., Warren, Pa	137,597.31	2.71	138,372.79	3.14	138,502.62	3.79
Emlenton Refining Co., Emlenton, Pa	105,056.45	2.07	105,002.22	2.38	126,623.51	3.47
Pennsylvania Paraffine Works, Titusville, Pa	132,050.62	2.60	132,042.76	3.00	131,953.68	3.61
Levi Smith, Ltd., Clarendon, Pa	94,819.16	1.87	98,213.23	2.23	95,856.57	2.62

[1] Clerical errors in entries and reports.

[2] Deduction.

Deliveries of crude oil by pipe lines—Continued.

NATIONAL TRANSIT COMPANY—Continued.

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
DELIVERIES—continued.						
F. Wholebin, Clarendon, Pa.			432.74	0.01	477.83	0.01
Phoenix Glass Works, Monaca, Pa.	189.64					
Petrolia Refining Co., Petrolia, Pa.	697.26	0.01	694.80	.02	297.82	.01
W. H. Daugherty Sons Refining Co., Petrolia, Pa.	3,406.59	.07	499.61	.01	748.61	.02
Jas. Ried Gas Engine Works, Oil City, Pa.	197.34		136.12		409.38	.01
Kramer Wagon Works, Oil City, Pa.	25.21					
Hamilton Woolen Co., Southbridge, Mass	213.10		364.64	.01	214.19	.01
Standard Oil Co. of New York, East Boston, Mass	823.46	.02	494.57	.01	630.96	.02
Standard Oil Co., Communipaw, N. J.	1,452.83	.03	3,867.60	.09	4,509.38	.12
Standard Oil Co. of New York, Albany, N. Y.					108.76	.01
Standard Oil Co. of New York, Elmira, N. Y.					144.98	
Vacuum Oil Co., Olean, N. Y.	823,794.23	16.21	1,080,524.95	24.51	301,827.62	8.27
Vacuum Oil Co., Duke, Pa.					190,526.07	5.22
Vacuum Oil Co., Smithport, Pa.					4,601.37	.12
S. M. Willock, Pittsburgh, Pa.	154,629.37	3.04	42,053.15	.95		
Atlantic Refining Co., Franklin, Pa.	1,447,986.20	28.49	984,076.20	22.33	1,093,497.16	29.95
Atlantic Refining Co., Pittsburgh, Pa.	405,961.20	7.99	110,231.78	2.50		
Atlantic Refining Co., Philadelphia, Pa.					342,546.33	9.38
E. Whitemore, Cleveland, Ohio					144.90	
Vacuum Oil Co., Gaines, Pa.	291.48					
Vacuum Oil Co., Clear Creek, Pa.	3.69					
Standard Oil Co. of New York, Olean, N. Y.			223,875.00	5.08	308,447.31	8.45
Tidewater Pipe Co., Ltd., Rixford, Pa.	1,121,979.58	22.08	833,488.28	18.91	260,035.03	7.12
Fire loss (tanks of oil burned)	142.88					
Oil burned as fuel (National Transit foundry), Oil City, Pa.	499.79	.01	484.37	.01	317.88	.01
Total	5,082,474.33	100.00	4,407,965.59	100.00	3,651,809.28	100.00

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
P. S. Trainor	3,814,829.55	100.00	3,233,572.37	96.46		
Joseph Seep					2,051,581.32	71.54
South Penn Oil Co			118,270.73	3.53	735,193.96	25.63
Overdrafts and corrections[1]	[2] 310.64		[2] 322.21	[2] .01	522.22	.02
Bessemer Refining Co					8,280.82	.29
Coldwater Refining Co			804.80	.02	761.93	.03
Crystal Oil Works					34,672.01	1.21
Penn Refining Co					5,290.53	.18
Seneca Oil Works					484.70	.02
Titusville Oil Works					30,905.21	1.08
Total	3,814,518.91	100.00	3,352,325.69	100.00	2,867,692.70	100.00

[1] Clerical errors in entries and reports.

[2] Deduction.

Deliveries of crude oil by pipe lines—Continued.

NATIONAL TRANSIT COMPANY—Continued.

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
DELIVERIES.						
Conewango Refining Co., Warren, Pa	102,299.23	2.57	101,975.64	2.50	101,886.56	3.38
Cornplanter Refining Co., Warren, Pa	140,634.82	3.54	140,751.78	3.45	141,153.63	4.69
Glade Oil Works, Warren, Pa	137,616.61	3.46	137,133.39	3.36	138,285.03	4.60
Seneca Oil Works, Warren, Pa	174,089.52	4.38	175,067.97	4.29	174,654.48	5.80
Superior Oil Works, Warren, Pa	93,877.00	2.36	95,695.78	2.35	98,458.54	3.27
Warren Refining Co., Warren, Pa	137,595.80	3.46	137,811.94	3.38	138,024.70	4.59
Emlenton Refining Co., Emlenton, Pa	143,998.70	3.62	144,005.44	3.53	144,001.92	4.79
Pennsylvania Paraffine Works, Titusville, Pa	132,015.25	3.32	131,345.29	3.22	130,752.62	4.34
Levi Smith, Ltd., Clarendon, Pa	94,122.44	2.37	98,227.99	2.41	95,749.69	3.18
F. Wholebin, Clarendon, Pa	328.90	.01				
Petrolia Refining Co., Petrolia, Pa	298.26	.01	597.07	.01	683.83	.02
W. H. Daugherty Sons Refining Co., Petrolia, Pa	1,100.38	.03	2,093.26	.05	4,875.19	.16
Jas. Ried Gas Engine Works, Oil City, Pa	387.97	.01	270.50	.01	342.13	.01
Kramer Wagon Works, Oil City, Pa					39.85	
United Natural Gas Co., Oil City, Pa	3.71					
Hamilton Woolen Co., Southbridge, Mass	325.80	.01	262.28	.01	214.62	.01
Standard Oil Co. of New York, East Boston, Mass	826.30	.02	464.76	.01	598.52	.02
Standard Oil Co. of New York, Albany, N. Y			144.81	.01	445.17	.02
Standard Oil Co. of New York, Elmira, N. Y			154.29			
Vacuum Oil Co., Olean, N. Y	190.26		6,725.59	.16	261,380.37	8.69
Vacuum Oil Co., Duke, Pa	272,673.46	6.86	272,724.75	6.68		
Vacuum Oil Co., Smithport, Pa	6,165.36	.16				
Atlantic Refining Co., Franklin, Pa	1,335,936.86	33.61	1,149,756.23	28.17	891,281.80	29.62
Atlantic Refining Co., Pittsburgh, Pa	318.81	.01				
Atlantic Refining Co., Philadelphia, Pa	242,392.00	6.10	170,078.10	4.17		
Coldwater Refining Co, Raymilton, Pa			800.80	.02	762.13	.03
Standard Oil Co. of New York, Olean, N. Y	552,219.49	13.89	226,588.98	5.55		
Standard Oil Co. of New York, Centerbridge, Pa			577,932.81	14.17		
The Tidewater Pipe Co., Ltd., Rixford, Pa	404,750.87	10.18	503,262.25	12.34	605,878.61	20.13
The Tidewater Pipe Co., Ltd., County Line, Pa			5,624.99	.14	5,208.39	.17
Fire loss (tanks of oil burned)					412.03	.01
Oil burned as fuel (National Transit foundry), Oil City, Pa	607.02	.02	396.35	.01	625.48	.02
The Bessemer Refining Co., Titusville, Pa					8,209.12	.27
Titusville Oil Works, Titusville, Pa					29,353.13	.98
Crystal Oil Works, Oil City, Pa					30,618.00	1.02
Penn Refining Co., Oil City, Pa					5,258.42	.18
Total	3,974,769.82	100.00	4,079,893.04	100.00	3,009,156.96	100.00

Deliveries of crude oil by pipe lines—Continued.

NATIONAL TRANSIT COMPANY—Continued.

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.				
Joseph Seep	2,210,881.53	78.42	2,231,671.22	81.66
South Penn Oil Co	410,553.75	14.56	396,112.71	14.49
Overdrafts and corrections [1]	[2] 124.71		[2] 81.30	
Coldwater Refining Co	1,528.08	.05		
Crystal Oil Works	18,034.66	.64		
W. H. Daugherty & Sons Refining Co	1,129.42	.04		
Penn Refining Co	12,606.85	.45		
Pennsylvania Paraffine Works	140,415.61	4.98	103,352.03	3.78
Titusville Oil Works	24,358.29	.86	1,836.59	.07
Total	2,819,383.48	100.00	2,732,891.25	100.00
DELIVERIES.				
Conewango Refining Co., Warren, Pa	101,742.46	3.77	122,863.75	4.68
Cornplanter Refining Co., Warren, Pa	140,710.22	5.21	151,648.70	5.78
Glade Oil Works, Warren, Pa	136,584.87	5.06	139,424.32	5.31
Seneca Oil Works, Warren, Pa	173,454.86	6.43	172,195.19	6.56
Superior Oil Works, Warren, Pa	95,582.40	3.54	92,199.47	3.51
Warren Refining Co., Warren, Pa	138,577.82	5.14	149,343.90	5.69
Emlenton Refining Co., Emlenton, Pa	143,108.92	5.30	152,935.32	5.83
Pennsylvania Paraffine Works, Titusville, Pa	141,305.12	5.23	100,921.85	3.84
Levi Smith, Ltd., Clarendon, Pa	96,347.35	3.57	103,342.45	3.94
Petrolia Refining Co., Petrolia, Pa	336.25	.01	299.09	.01
W. H. Daugherty Sons Refining Co., Petrolia, Pa	1,164.43	.04		
Jas. Ried Gas Engine Works, Oil City, Pa	580.01	.02	550.65	.02
United Natural Gas Co., Oil City, Pa			3.58	
Hamilton Woolen Co., Southbridge, Mass	154.45	.01	120.00	
Standard Oil Co. of New York, East Boston, Mass	604.24	.02	307.98	.01
Standard Oil Co. of New York, Albany, N. Y	300.33	.01	344.22	.01
Standard Oil Co. of New York, Elmira, N. Y	307.53	.01	153.83	.01
Vacuum Oil Co., Olean, N. Y	348,135.46	12.90	360,304.81	13.73
Atlantic Refining Co., Franklin, Pa	503,341.30	18.65	594,579.67	22.65
Coldwater Refining Co., Raymilton, Pa	1,528.61	.06		
Standard Oil Co. of New York, Centerbridge, Pa	34,946.11	1.29		
The Tidewater Pipe Co., Ltd., Rixford, Pa	579,048.29	21.46	465,523.31	17.74
Vulcan Oil Refining Co			7,390.00	.28
Beaver Refining Co			1,500.00	.06
Fire loss (tanks of oil burned)	489.37	.02		
Oil burned as fuel (National Transit foundry), Oil City, Pa	360.27	.01	246.41	.01
Titusville Oil Works, Titusville, Pa	25,579.60	.95	2,162.76	.08
Crystal Oil Works, Oil City, Pa	19,987.41	.74		
Penn Refining Co., Oil City, Pa	14,731.35	.55		
Clarendon Refining Co., Clarendon, Pa			434.68	.02
Tiona Refining Co., Clarendon, Pa			3,982.05	.15
Empire Oil Works, Reno, Pa			1,982.11	.08
Total	2,699,009.03	100.00	2,624,760.10	100.00

NEW YORK TRANSIT COMPANY.

	1906		1907		1908	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Vacuum Oil Co	26,848.15	22.33	67,190.59	23.17	23,646.06	8.64
P. S. Trainor	93,393.39	77.67	222,814.95	76.83	249,941.37	91.36
Total	120,241.54	100.00	290,005.54	100.00	273,587.43	100.00
DELIVERIES.						
Vacuum Oil Co	114,723.63	99.55	288,905.10	99.52	274,977.48	99.18
Standard Oil Co. of New York	522.75	.45	1,399.51	.48	2,265.13	.82
Total	115,246.38	100.00	290,304.61	100.00	277,242.61	100.00

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[1] Clerical errors in entries and reports.

[2] Deduction.

Deliveries of crude oil by pipe lines—Continued.

NEW YORK TRANSIT COMPANY—Continued.

	1909		1910		1911	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Vacuum Oil Co	7,123.37	3.26	3,556.10	1.81	1,102.90	0.59
P. S. Trainor	211,679.07	96.74	192,531.28	98.19	179,939.53	95.87
South Penn Oil Co	....	....	....	....	6,654.32	3.54
Total	218,802.44	100.00	196,087.38	100.00	187,696.75	100.00
DELIVERIES.						
Vacuum Oil Co	216,871.24	99.08	193,930.76	98.89	186,777.30	99.16
Standard Oil Co. of New York	2,004.87	.92	2,176.89	1.11	1,590.32	.84
Total	218,876.11	100.00	196,107.65	100.00	188,367.62	100.00

	1912		1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
South Penn Oil Co	181,134.37	100.00	196,249.13	100.00	206,554.41	100.00
DELIVERIES.						
Vacuum Oil Co	178,383.26	99.45	190,839.55	99.45	208,376.74	99.31
Standard Oil Co. of New York	983.02	.55	1,061.81	.55	1,442.00	.69
Total	179,366.28	100.00	191,901.36	100.00	209,818.74	100.00

THE OHIO OIL COMPANY.

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Ohio Oil Co	24,021,030.57	100.00	31,820,848.41	100.00	28,839,093.61	100.00
DELIVERIES.						
Atlas Works, Buffalo, N. Y	173,658.06	1.60	....	....	....	....
Craig Oil Co., tank cars to Lima, Ohio	....	....	5,018.78	.03	23,300.07	.09
Greenville Gas Co., Greenville, Ill	3.00	....	....	....	....	....
New York Transit Co., New York division	....	....	18,580.91	.10	....	....
Seneca Oil Works, Struthers, Pa	151.69	....	....	....	....	....
Northern Pipe Line Co., to cover shortage	....	....	47,027.55	.24	28,871.92	.11
Indiana Pipe Line Co., to cover shortage	48,646.39	.45	7,950.29	.04	67,085.94	.27
The Buckeye Pipe Line Co., to cover shortage	28,554.91	.26	79,060.55	.40	65,817.96	.26
Southern Pipe Line Co., to cover shortage	12,550.61	.11	3,381.19	.02	....	....
The Eureka Pipe Line Co., to cover shortage	11,630.85	.10	30,947.42	.16	43.995.68	.17
Southwest Pennsylvania Pipe Lines, to cover shortage	17,446.90	.16	47,847.37	.24	28,538.29	.11
The Crescent Pipe Line Co., to cover shortage	39,207.99	.36	30,293.64	.15	10,087.97	.04

Deliveries of crude oil by pipe lines—Continued.

THE OHIO OIL COMPANY—Continued.

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
DELIVERIES—continued.						
New York Transit Co., to cover shortage	18,793.13	0.17	9,920.85	0.05	1,823.38	0.01
National Transit Co., to cover shortage	7,131.74	.07	9,295.03	.05	8,868.59	.04
Martinsville-Preble line, to cover shortage	25,113.57	.23				
Fire loss					128,454.62	.51
Fuel used by the Ohio Oil Co.	2,896.20	.03	97,858.75	.50	118,604.30	.47
Account closing Marshall skimming plant (loss)					4,288.57	.02
Atlantic Refining Co., Marcus Hook, Pa	811,271.42	7.42	1,723,492.40	8.81	1,520,891.22	6.00
Atlantic Refining Co., Philadelphia, Pa	1,545,496.93	14.13	2,768,524.58	14.16	3,034,182.93	11.98
Atlantic Refining Co., Pittsburgh, Pa			51,075.19	.26	165,238.22	.65
Atlantic Refining Co., tank cars, Pittsburgh, Pa	639.62	.01				
Atlantic Refining Co., tank cars, various points			521,967.53	2.67		
Freedom Oil Works, Negley, Pa					21,543.55	.09
Freedom Oil Works, tank cars			3,977.13	.02		
Solar Refining Co., Lima, Ohio	2,933,678.28	26.84	1,765,941.79	9.03	1,117,995.01	4.42
Solar Refining Co., Lima, Ohio (naphtha)					24,083.59	.09
Solar Refining Co., Oakland City, Ind					2,208.10	.01
Solar Refining Co., Princeton, Ind			28,532.47	.15	45,270.33	.18
Solar Refining Co., tank cars, various points	2,628.55	.02				
Standard Oil Co. (New Jersey), Centerbridge, Pa	1,667,022.54	15.25	3,701,691.13	18.93	9,436,993.06	37.27
Standard Oil Co. (New Jersey), Fawngrove, Pa	459,191.57	4.20	1,096,051.95	5.61	1,262,462.90	4.99
Standard Oil Co. (New Jersey), Unionville, N. Y	944,566.19	8.64	2,351,916.21	12.03	2,036,779.70	8.06
Standard Oil Co. (New Jersey), tank cars, various points	2,338.26	.02				
Standard Oil Co. (Indiana), tank cars, Duncanville, Ill			25,475.15	.13	26,983.06	.11
Standard Oil Co. (Indiana), tank cars, Stoy, Ill			44,282.26	.23	78,082.61	.31
Standard Oil Co. (Indiana), tank cars, Whiting, Ind	791,106.67	7.24				
Standard Oil Co. (Indiana), tank cars, various points	33,875.39	.30				
Standard Oil Co. (Indiana), Whiting, Ind	99,423.89	.91				
Standard Oil Co. (Indiana), Wood River, Ill			2,201,484.68	11.26	2,747,490.51	10.85
Standard Oil Co. (Ohio), Cleveland, Ohio	1,254,530.90	11.48	1,276,201.83	6.53	1,201,361.16	4.75
Standard Oil Co. (Ohio), Cleveland, Ohio, Stoy, Ill			1,760.45	.01		
Standard Oil Co. of New York, Buffalo, N. Y			323,830.91	1.66	383,680.51	1.52
Standard Oil Co. of New York, Olean, N. Y			480,776.33	2.46	698,359.54	2.76
The Tidewater Pipe Co., Ltd.			795,873.55	4.07	979,196.96	3.87
Total	10,931,555.25	100.00	19,550,037.87	100.00	25,311,842.26	100.00

Deliveries of crude oil by pipe lines—Continued.

THE OHIO OIL COMPANY—Continued.

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Ohio Oil Co	28,194,336.83	100.00	26,390,609.21	100.00	23,361,282.17	100.00
DELIVERIES.						
Benj. Drayton (fuel oil)	265.12		674.50			
Eshelman & Laughlin					515.71	
McNulty & Middle	288.02					
National Refining Co., Muren, Ind			15,020.97	.04		
Shaffer-Smathers Oil Co					985.11	.01
Northern Pipe Line Co., to cover shortage	44,457.45	.15	25,861.25	.07		
Indiana Pipe Line Co., to cover shortage	32,848.02	.11	18,918.73	.05	27,214.62	.09
The Buckeye Pipe Line Co., to cover shortage	54,881.10	.18	8,936.91	.03	2,493.64	.01
The Eureka Pipe Line Co., to cover shortage	512.96		17,864.93	.05		
Southwest Pennsylvania Pipe Lines, to cover shortage	29,663.97	.10	12,344.19	.03	11,580.84	.04
The Crescent Pipe Line Co., to cover shortage			6,827.53	.02		
National Transit Co., to cover shortage	3,409.56	.01	2,840.99	.01	3,568.92	.01
Fire loss	39,233.37	.13			1,261.06	
Fuel used by the Ohio Oil Co.	113,225.45	.40	122,882.92	.35	134,305.16	.42
Running loss account	75,123.10	.25	31,291.26	.09		
"Skimmer plant," for fuel	35,376.20	.12	16,136.80	.04		
Atlantic Refining Co., Franklin, Pa	174,921.43	.59	165,859.40	.47	318,855.57	1.00
Atlantic Refining Co., Marcus Hook, Pa	1,865,955.60	6.25	1,834,300.52	5.17	1,553,908.52	4.88
Atlantic Refining Co., Philadelphia, Pa	2,071,073.10	6.94	2,142,555.48	6.04	1,584,562.90	4.98
Atlantic Refining Co., Pittsburgh, Pa	533,972.64	1.79	495,650.52	1.40	591,370.78	1.86
Atlantic Refining Co, Pittsburgh, Pa. (Duncanville)	36,381.99	.12	35,491.33	.10		
Freedom Oil Works, Negley, Pa	19,825.06	.07	21,860.70	.06	27,526.09	.09
Freedom Oil Works, Thompson, Pa	737.81					
Solar Refining Co., Lima, Ohio.	1,808,839.62	6.06	2,373,238.10	6.69	2,781,413.29	8.74
Solar Refining Co., Lima, Ohio (naphtha)	431,136.02	1.44				
Solar Refining Co., Oakland City, Ind	94,139.16	.32				
Solar Refining Co., Princeton, Ind	21,065.65	.07				
Solar Refining Co., Bee Hunter, Ind			1,816.09			
Standard Oil Co. (New Jersey), Centerbridge, Pa	9,675,920.52	32.42	13,417,378.15	37.80	14,184,968.80	44.57
Standard Oil Co. (New Jersey), Fawngrove, Pa	1,775,081.08	5.94	2,088,936.26	5.88	2,063,606.29	6.48
Standard Oil Co. (New Jersey), Unionville, N. Y	5,601,610.22	18.77	5,183,451.23	14.60	1,495,384.10	4.70
Standard Oil Co. (Indiana), tank cars, Duncanville, Ill.	39,520.18	.13	61,013.65	.17	27,461.83	.09
Standard Oil Co. (Indiana), tank cars, Elwood, Ind	26.49					
Standard Oil Co. (Indiana) (naphtha), Martinsville, Ill			34,868.04	.10		
Standard Oil Co. (Indiana), tank cars, Sandoval, Ill	3,749.14	.01				
Standard Oil Co. (Indiana), tank cars, Stoy, Ill	70,665.51	.24	125,320.95	.35	93,615.99	.29
Standard Oil Co. (Indiana), tank cars, Whiting, Ind. (naphtha)	122,400.55	.41	17,377.73	.05		
Standard Oil Co. (Indiana), Whiting, Ind			57,231.55	.16		
Standard Oil Co. (Indiana), Wood River, Ill	3,631,674.25	12.17	3,560,459.54	10.03	4,051,708.01	12.73
Standard Oil Co. (Ohio), Cleveland, Ohio	1,436,873.90	4.81	1,971,947.21	5.56	2,342,341.88	7.36
The Tidewater Pipe Co., Ltd., Stoy, Ill			1,629,406.61	4.59	526,181.23	1.65
Total	29,849,354.24	100.00	35,497,764.04	100.00	31,824,830.34	100.00

Deliveries of crude oil by pipe lines—Continued.

THE OHIO OIL COMPANY—Continued.

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.				
The Ohio Oil Co	18,191,567.54	100.00	17,139,294.30	100.00
DELIVERIES.				
Vacuum Oil Co., Olean, N. Y			99,999.66	.87
Saddle River Oil Co., Unionville, N. Y			244,192.85	2.14
Indiana Pipe Line Co., to cover shortage	77,465.29	.30	4,344.92	.04
The Buckeye Pipe Line Co., to cover shortage	21,464.04	.08	1,792.02	.01
Southwest Pennsylvania Pipe Lines, to cover shortage	10,193.00	.04	9,964.96	.09
National Transit Co., to cover shortage	4,074.50	.02	2,893.97	.03
Fuel used by The Ohio Oil Co	29,184.01	.12	1,448.16	.01
Atlantic Refining Co., Franklin, Pa	247,915.12	.97	89,006.67	.78
Atlantic Refining Co., Marcus Hook, Pa	1,592,730.18	6.26	369,152.42	3.23
Atlantic Refining Co., Philadelphia, Pa	1,078,600.39	4.24	273,412.94	2.39
Atlantic Refining Co., Pittsburgh, Pa	470,765.48	1.85	142,883.45	1.25
Freedom Oil Works, Negley, Pa	33,687.28	.13	7,988.63	.07
Solar Refining Co., Lima, Ohio	2,164,347.68	8.51	304,185.88	2.66
Solar Refining Co., Bee Hunter, Ind	3,534.65	.01	2,778.50	.02
Solar Refining Co., tank cars, Riley, Ind., to Lima, Ohio	8,049.39	.03	3,627.84	.03
Standard Oil Co. (New Jersey), Bayway, N. J			1,310,266.40	11.46
Standard Oil Co. (New Jersey), Centerbridge, Pa	11,403,636.22	44.85	7,701,793.59	67.37
Standard Oil Co. (New Jersey), Fawngrove, Pa	1,833,925.75	7.21		
Standard Oil Co. (New Jersey), Unionville, N. Y	903,037.14	3.55		
Standard Oil Co. (Indiana), tank cars, Duncanville, Ill	77,560.23	.32		
Standard Oil Co. (Indiana), tank cars, Stoy, Ill	759.05			
Standard Oil Co. (Indiana), tank cars, Whiting, Ind.			66,326.21	.58
Standard Oil Co. (Indiana), tank cars, various points	7,005.05	.03		
Standard Oil Co. (Indiana), Wood River, Ill	2,808,614.97	11.05		
Standard Oil Co. (Ohio), Cleveland, Ohio	2,231,096.09	8.77	363,298.72	3.18
Standard Oil Co. of Louisiana			246.71	
The Tidewater Pipe Co., Ltd., Rixford, Pa	254,733.53	1.00	178,916.24	1.57
The Tidewater Pipe Co., Ltd., Shelburn, Ind	28,037.05	.12	18,395.05	.16
The Tidewater Pipe Co., Ltd., Stoy, Ill	138,299.59	.54	235,241.49	2.06
Total	25,428,715.68	100.00	11,432,157.23	100.00

STANDARD OIL COMPANY OF LOUISIANA.

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
Standard Oil Co. of Louisiana.	1,138,653.46	100.00	2,268,681.37	100.00	2,451,972.52	100.00
DELIVERIES.						
Standard Oil Co. of Louisiana, refinery, via pipe line	79,531.48	7.00	539,279.93	38.15	2,489,750.31	90.69
Standard Oil Co. of Louisiana, production department, via cars from Lewis, La			972.38	.08	283.14	.01
Magnolia Petroleum Co., Beaumont, Tex			299,939.56	21.22		
Magnolia Petroleum Co., Corsicana, Tex			15,773.06	1.12		
John Sealy & Co., Corsicana, Tex	447,464.79	39.37	188,980.60	13.37		
John Sealy & Co., Beaumont, Tex	609,425.94	53.63	190,784.78	13.50		
Kansas City Southern Ry. Co			177,418.58	12.55	246,102.93	8.96
Juella Oil & Gas Co			16.43		325.30	.01
Angola Transfer Co., via cars from Lewis, La					3,713.97	.14
Reisor Land & Mineral Co., Moore, La., via tank wagon from Moore, La					35.64	
Fuel at pumping stations	47.81		178.62	.01	5,091.31	.19
Total	1,136,470.02	100.00	1,413,343.94	100.00	2,745,302.60	100.00

Deliveries of crude oil by pipe lines—Continued.

STANDARD OIL COMPANY OF LOUISIANA—Continued.

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.				
Standard Oil Co. of Louisiana	3,990,599.81	100.00	5,239,609.65	100.00
DELIVERIES.				
Standard Oil Co. of Louisiana, refinery, via pipe line.	4,190,262.88	97.35	5,080,796.24	97.61
Standard Oil Co. of Louisiana, refinery, via cars from Lewis, La.			107,112.88	2.06
Standard Oil Co. of Louisiana, production department, via cars from Lewis, La.			2,314.36	.04
Angola Transfer Co., via cars from Lewis, La.	12,033.87	.28		
Scheim Berger & Hunter Oil Co., via cars from Lewis, La.	70,945.00	1.65		
Process Oil Co., via cars from Lewis, La.	9,595.00	.22		
Board of health of Shreveport, La., via cars from Lewis, La.	257.35	.01		
Segura Sugar Co., Segura, La., via cars from Lewis, La.	246.90	.01		
Penick & Ford, Dora, La., via cars from Lewis, La.	3,011.38	.07		
Reisor Land & Mineral Co., Moore La., via tank wagon from Moore, La.	221.07			
R. E. Allison, Moore, La., via tank wagon from Moore, La.	222.00	.01		
E. O. Harper, Shreveport, La., Moore, La., via tank wagon from Moore, La.			61.19	
Fuel at pumping stations	17,549.91	.40	14,965.82	.29
Total	4,304,345.36	100.00	5,205,250.49	100.00

SOUTHWEST PENNSYLVANIA PIPE LINES.

	1896		1897		1898	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Henry Lewis	6,275,234.20	100.00	4,988,198.92	99.22	2,176,822.32	50.36
James McGee					1,051,008.73	24.31
P. S. Trainor					669,073.41	15.48
Joseph Seep			39,148.81	.78	425,743.20	9.85
Total	6,275,234.20	100.00	5,027,347.73	100.00	4,322,647.66	100.00

	1899		1900		1901	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
P. S. Trainor	3,883,864.97	100.00	3,803,938.96	100.00	4,054,741.44	100.00

	1902		1903		1904	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
P. S. Trainor	3,539,177.17	100.00	3,212,803.27	100.00	2,907,915.97	100.00

Deliveries of crude oil by pipe lines—Continued.

SOUTHWEST PENNSYLVANIA PIPE LINES—Continued.

	1905		1906	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.				
P. S. Trainor	2,422,718.69	100.00	2,307,579.97	100.00

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
P. S. Trainor			1,881,043.01	100.00	1,698,770.06	100.00
South Penn Oil Co	2,106,459.28	100.00				
DELIVERIES.						
Lake Carriers Oil Co., Coraopolis, Pa	169,360.29	9.78	164,637.37	9.06	166,355.30	10.11
Canfield Oil Co., Coraopolis, Pa	131,340.47	7.59	130,305.16	7.17	132,502.64	8.05
Pittsburgh Oil Refining Co., Coraopolis, Pa	104,367.68	6.03	103,181.07	5.68	106,746.36	6.49
Island Petroleum Co., Neville Island, Pa	103,426.85	5.97	100,564.29	5.53	99,519.14	6.05
A. D. Millers Sons Co., Allegheny, Pa	71,843.80	4.15	30,096.17	1.66	9,477.12	.58
Freedom Oil Works Co., Freedom, Pa	202,452.65	11.69	201,818.55	11.10	204,411.38	12.42
Beaver Refining Co., Oak Grove, Pa	34,670.00	2.00	37,326.71	2.05	36,015.22	2.19
Sewickley Gas Co., Sewickley, Pa	127.18	.01	167.47	.01	161.66	.01
Atlantic Refining Co., Pittsburgh, Pa	1,663.74	.10	297,170.15	16.35	362,771.39	22.04
Atlantic Refining Co., West Elizabeth, Pa			1,059.95	.06		
Atlantic Refining Co., Church Siding, Pa			289.40	.02		
Atlantic Refining Co., Franklin, Pa			74,625.00	4.10		
Atlantic Refining Co., Philadelphia, Pa	912,079.15	52.68	484,570.41	26.66	372,226.36	22.62
Waverly Oil Works Co., Pittsburgh, Pa			117,349.25	6.45	148,770.17	9.04
Standard Oil Co. (New Jersey), Centerbridge, Pa			74,625.00	4.10		
Standard Oil Co. of New York, Olean, N. Y					6,653.11	.40
Total	1,731,331.81	100.00	1,817,785.95	100.00	1,645,609.85	100.00

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
P. S. Trainor	1,617,212.10	100.00	1,559,198.73	95.32		
South Penn Oil Co			76,533.19	4.68	1,437,926.95	100.00
Total	1,617,212.10	100.00	1,635,731.92	100.00	1,437,926.95	100.00
DELIVERIES.						
Lake Carriers Oil Co., Coraopolis, Pa	164,183.61	10.74	165,444.18	12.31	142,809.34	9.22
Vulcan Oil Refining Co					22,109.86	1.43
Canfield Oil Co., Coraopolis, Pa	132,130.12	8.64	133,404.82	9.92	132,849.69	8.58

Deliveries of crude oil by pipe lines—Continued.

SOUTHWEST PENNSYLVANIA PIPE LINES—Continued.

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
DELIVERIES—continued.						
Pittsburgh Oil Refining Co., Coraopolis, Pa.	105,345.62	6.89	112,134.40	8.34	44,259.93	2.86
Island Petroleum Co., Neville Island, Pa.	102,241.06	6.69	104,648.74	7.78	103,176.30	6.66
A. D. Millers Sons Co., Allegheny, Pa.	60,083.20	3.93	74,585.88	5.55	91,932.20	5.94
Freedom Oil Works Co., Freedom, Pa.	206,140.37	13.49	201,597.39	14.99	204,747.12	13.22
Beaver Refining Co., Oak Grove, Pa.	28,453.48	1.86				
Beaver Refining Co., Washington, Pa.			32,122.71	2.39	31,568.76	2.04
Beaver Refining Co., Leasdale, Pa.	5,458.60	.35	4,676.64	.35	4,079.76	.26
Atlantic Refining Co., Pittsburgh, Pa.	354,584.90	23.19	257,990.59	19.19	242,396.20	15.65
Atlantic Refining Co., West Elizabeth, Pa.	394.79	.03			866.97	.06
Atlantic Refining Co., Church Siding, Pa.	873.15	.06	986.12	.07		
Atlantic Refining Co., Franklin, Pa.	73,979.89	4.84	69,301.22	5.15	255,968.89	16.53
Atlantic Refining Co., Philadelphia, Pa.	64,181.19	4.20	30,913.44	2.30	36,340.09	2.35
Waverly Oil Works Co., Pittsburgh, Pa.	162,654.88	10.64	156,756.49	11.66	152,541.15	9.85
Standard Oil Co. (New Jersey), Claremont, N. J.					7,520.11	.49
Standard Oil Co. of New York, Olean, N. Y.	67,971.89	4.45			75,000.00	4.84
The Eureka Pipe Line Co.					375.00	.02
Total	1,528,676.75	100.00	1,344,562.62	100.00	1,548,541.37	100.00

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.				
South Penn Oil Co.	1,370,706.48	100.00	1,382,758.67	100.00
DELIVERIES.				
Vulcan Oil Refining Co., Coraopolis, Pa.	165,625.58	12.50	177,297.18	11.76
Canfield Oil Co., Coraopolis, Pa.	131,656.92	9.94	136,805.31	9.07
Island Petroleum Co., Neville Island, Pa.	26,051.09	1.97		
A. D. Millers Sons Co., Allegheny, Pa.	96,585.49	7.29	91,519.71	6.07
Freedom Oil Works Co., Freedom, Pa.	205,885.31	15.54	309,795.87	20.55
Beaver Refining Co., Washington, Pa.	27,132.51	2.06	35,395.27	2.35
Beaver Refining Co., Leasdale, Pa.	3,500.51	.26	3,083.10	.20
Beaver Refining Co., Finleyville, Pa.	154.17	.01	462.51	.03
Atlantic Refining Co., Pittsburgh, Pa.	121,586.16	9.18	200,716.98	13.31
Atlantic Refining Co., West Elizabeth, Pa.	344.93	.02	1,222.08	.08
Atlantic Refining Co., Church Siding, Pa.	462.91	.03	241.38	.02
Atlantic Refining Co., Franklin, Pa.	241,921.41	18.26	245,078.59	16.25
Atlantic Refining Co., Philadelphia, Pa.	80,484.04	6.08	51,660.45	3.43
Waverly Oil Works Co., Pittsburgh, Pa.	157,132.04	11.86	151,637.33	10.06
Standard Oil Co. (New Jersey), Centerbridge, Pa.			40,000.00	2.65
Standard Oil Co. (New Jersey), Claremont, N. J.	11,978.46	.90		
Standard Oil Co. (New Jersey), Bayonne, N. J.			24,856.88	1.65
Standard Oil Co. of New York, Olean, N. Y.	41,942.71	3.17	38,057.29	2.52
The Chesebrough Manufacturing Co., Perth Amboy, N. J.	241.21	.02		
Oil purchased by Southwest Pennsylvania Pipe Lines for over short accounts	12,000.00	.91		
Total	1,324,685.45	100.00	1,507,829.93	100.00

Deliveries of crude oil by pipe lines—Continued.

THE TIDEWATER PIPE COMPANY, LIMITED.

	1904		1905		1906	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Tidewater Pipe Co., Ltd..	1,793,833.47	100.00	1,721,689.17	100.00	1,709,141.57	100.00

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Tidewater Pipe Co., Ltd..	1,614,954.61	100.00	1,539,168.94	100.00	2,465,325.09	100.00
DELIVERIES.						
Tidewater Oil Co., Bayonne, N. J.	2,711,990.57	97.99	3,216,009.50	98.14	3,214,986.59	97.23
Penn Lubricating Co., Bradford, Pa.	41,746.12	1.51	36,639.13	1.12	....	....
Union Petroleum Co., Philadelphia, Pa.	....	....	6,930.29	.21	7,480.41	.23
Fuel account.	544.00	.02	3,420.00	.10	14,648.85	.44
Loss in handling.	13,307.10	.48	14,042.35	.43	69,427.74	2.10
Total.	2,767,587.79	100.00	3,277,041.27	100.00	3,306,543.59	100.00

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Tidewater Pipe Co., Ltd..	3,342,981.34	100.00	2,804,885.73	100.00	2,469,385.84	100.00
DELIVERIES.						
Tidewater Oil Co., Bayonne, N. J.	3,821,614.86	99.32	3,725,171.11	99.41	3,768,884.83	98.75
Union Petroleum Co., Philadelphia, Pa.	....	....	....	....	1,875.00	.05
Wellsville Refining Co., Wellsville, N. Y.	3,548.06	.09	2,488.42	.07	....	....
The Ohio Oil Co. (burst tank No. 37), Findlay, Ohio	....	....	....	....	2,725.21	.07
Snow Steam Pump Co., Buffalo, N. Y.	....	....	....	....	14.29	....
Fuel account.	22,550.73	.59	18,099.21	.48	15,747.61	.41
Loss in handling.	134.31	....	1,633.67	.04	27,262.78	.72
Total.	3,847,847.96	100.00	3,747,392.41	100.00	3,816,509.72	100.00

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.				
The Tidewater Pipe Co., Ltd.	2,973,872.40	100.00	2,707,513.48	100.00
DELIVERIES.				
Tidewater Oil Co., Bayonne, N. J.	3,614,078.14	89.22	3,393,244.96	88.99
Boardman & Bell, Bradford, Pa.	3,976.58	.10	4,282.25	.11
Coffin & Boardman, Bradford, Pa.	1,000.00	.02	....	....
Wellsville Refining Co., Wellsville, N. Y.	1,143.60	.03	....	....
Vacuum Oil Co., Rochester, N. Y.	290,879.09	7.18	346,805.22	9.10
The Ohio Oil Co. (Crow farm), Findlay, Ohio	125,192.97	3.09	46,657.27	1.22
Wabash Refining Co., Robinson, Ill.	20.43	....	....	....
Fuel account.	14,437.27	.36	14,554.80	.38
Loss in handling.	20.33	....	7,400.60	.20
Reserve for sediment and water.	....	....	41.26	....
Total.	4,050,748.41	100.00	3,812,986.36	100.00

Deliveries of crude oil by pipe lines—Continued.

CUMBERLAND PIPE LINE COMPANY.

	1901		1902		1903	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Kentucky Oil Supply Co.			2,915.96	1.82	2,078.01	0.39
Licking Valley Oil & Gas Co.					603.86	.12
Somerset Oil Co.			155.48	.10		
P. S. Trainor	15,653.42	100.00	157,353.81	98.08	525,306.21	99.49
Total	15,653.42	100.00	160,425.25	100.00	527,988.08	100.00

	1904		1905		1906	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Chenoe Oil Co.	2.45		4,144.14	0.34		
John A. Geary			6,115.67	.50		
Indian Refining Co.					160,420.38	14.24
Indian Asphalt Co.			8,789.62	.73	56,719.04	5.04
Kentucky Oil Supply Co.	2,929.86	0.30	1,479.74	.12	260.95	.02
Lexington City National Bank					1,450.00	.13
Licking Valley Oil & Gas Co.	27,410.51	2.78				
P. S. Trainor	953,543.79	96.92	1,190,779.02	98.31	907,480.43	80.57
Total	983,886.61	100.00	1,211,308.19	100.00	1,126,330.80	100.00

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Indian Refining Co.	234,691.78	30.50	86,903.31	12.55	29,388.93	4.83
P. S. Trainor	534,735.57	69.50	605,344.22	87.45	579,446.03	95.17
Total	769,427.35	100.00	692,247.53	100.00	608,834.96	100.00
DELIVERIES.						
Atlantic Refining Co., Philadelphia, Pa.	302,223.88	39.20	563,072.74	93.54	421,943.32	92.60
Atlantic Refining Co., Pittsburgh, Pa.	223,875.00	29.04				
P. S. Trainor, shipments by car	120,277.69	15.60	38,247.58	6.35	31,101.11	6.83
Indian Refining Co.	122,837.25	15.94	141.90	.02		
Oil burned as fuel	1,580.92	.22	494.55	.09	567.53	.12
Fire loss					2,057.73	.45
Total	770,794.74	100.00	601,956.77	100.00	455,669.69	100.00

Deliveries of crude oil by pipe lines—Continued.

CUMBERLAND PIPE LINE COMPANY—Continued.

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
Kentucky Oil Supply Co	888.77	0.19	....	....	....	....
New Domain Oil & Gas Co	....	....	....	....	39.00	0.01
South Penn Oil Co	....	....	13,764.27	3.00	478,521.85	99.99
P. S. Trainor	466,387.89	99.81	444,897.96	97.00	....	....
Total	467,276.66	100.00	458,662.23	100.00	478,560.85	100.00
DELIVERIES.						
Atlantic Refining Co., Philadelphia, Pa	454,335.22	86.67	439,620.20	80.12	163,605.44	31.58
P. S. Trainor, shipments by car	40,205.76	7.68	86,974.40	15.85	85,874.53	16.58
Oil burned as fuel	1,156.63	.22	1,866.75	.34	2,156.04	.42
Fire loss	27,846.14	5.31	20,250.27	3.69	....	....
Kentucky Oil Supply Co	647.93	.12	....	....	....	....
Atlantic Refining Co., Philadelphia, Pa	....	....	....	....	266,390.28	51.42
Total	524,191.68	100.00	548,711.62	100.00	518,026.29	100.00

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.				
Hiram Bradley	....	....	636.36	0.13
South Penn Oil Co	520,530.73	100.00	482,609.51	99.87
Total	520,530.73	100.00	483,245.87	100.00
DELIVERIES.				
P. S. Trainor, shipments by car	56,650.81	10.08	40,012.98	9.89
Oil burned as fuel	1,425.93	.25	1,285.65	.32
Fire loss	246.58	.04	....	....
Atlantic Refining Co., Philadelphia, Pa	503,789.60	89.63	284,001.54	70.21
Standard Oil Co. (New Jersey), Bayonne, N. J	....	....	79,200.00	19.58
Total	562,112.92	100.00	404,500.17	100.00

EMERY PIPE LINE.

	1904		1905		1906	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
Emery Pipe Line	269,825.00	100.00	290,462.41	100.00	304,955.30	100.00
DELIVERIES.						
Emery Manufacturing Co., Bradford, Pa	271,041.05	100.00	288,960.96	100.00	305,066.70	99.84
Olean, Rock City & Bradford Traction Co., Olean, N. Y	....	....	....	....	484.94	.16
Total	271,041.05	100.00	288,960.96	100.00	305,551.64	100.00

Deliveries of crude oil by pipe lines—Continued.

EMERY PIPE LINE—Continued.

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
Emery Pipe Line	307,984.68	100.00	308,238.42	100.00	351,541.72	100.00
DELIVERIES.						
Emery Manufacturing Co., Bradford, Pa.	305,115.64	98.79	206,392.42	67.16	297,943.04	84.38
Olean, Rock City & Bradford Traction Co., Olean, N. Y.	531.26	.17				
Western New York & Pennsylvania Traction Co., Olean, N. Y.	3,205.20	1.04				
United States Pipe Line Co., Titusville, Pa.			100,908.09	32.84	55,145.87	15.62
Total	308,852.10	100.00	307,300.51	100.00	353,088.91	100.00

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
Emery Pipe Line	349,358.77	100.00	335,701.11	100.00	319,488.91	100.00
DELIVERIES.						
Emery Manufacturing Co., Bradford, Pa.	346,513.28	100.00	340,004.94	100.00	334,067.89	100.00

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.				
Emery Pipe Line	337,483.77	100.00	358,601.37	100.00
DELIVERIES.				
Emery Manufacturing Co., Bradford, Pa.	336,322.10	100.00	283,620.41	78.77
The Tidewater Pipe Co., Ltd., New York, N. Y.			76,446.28	21.23
Total	336,322.10	100.00	360,066.69	100.00

Deliveries of crude oil by pipe lines—Continued.

GULF PIPE LINE COMPANY OF OKLAHOMA.

	1909		1910		1911	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
Gulf Pipe Line Co. of Oklahoma	1,830,015.50	100.00	7,811,330.12	100.00	8,102,871.14	100.00
DELIVERIES.						
Gulf Pipe Line Co.	1,720,668.45	99.89	7,802,730.14	96.66	7,572,127.08	98.54
Gulf Pipe Line Co., fuel oil at Powderly	158.92	.01	....	....	....	....
Gulf Refining Co.	962.14	.06	12,354.13	.15	....	....
Citizens Gas & Electric Co.	772.35	.04	....	....	....	....
Laurel Oil & Gas Co.	....	....	211,864.03	2.62	94,363.59	1.23
Gypsy Oil Co.	....	....	3,079.88	.04	1,917.20	.03
E. A. Sterling	....	....	238.55	....	....	....
Producers Oil Reduction Co.	....	....	2,010.52	.02	....	....
Quanah Ice & Light Co.	....	....	2,481.69	.03	2,870.57	.04
Quanah Cotton Oil Co.	....	....	3,757.64	.05	3,551.27	.05
City of Sherman	....	....	10,921.92	.14	3,692.13	.05
Sherman Gas Co.	....	....	719.78	.01	....	....
Sherman Ice Co.	....	....	9,179,13	.11	358.19	....
Diamond Mill Co.	....	....	7,075.36	.09	2,015.24	.03
Gulton Bag & Cotton Co.	....	....	395.51	....	190.48	....
Gainesville Water Co.	....	....	716.22	.01	....	....
Chapman Milling Co.	....	....	1,301.21	.02	....	....
Kell Milling Co.	....	....	2,010.19	.03	2,390.04	.03
R. S. & R. A. King	....	....	1,357.79	.02	....	....
Morrison & McBride	....	....	....	....	223.56	....
Victor Oil Co.	....	....	....	....	377.62	....
Burley Oil Co.	....	....	....	....	194.96	....
Total	1,722,561.86	100.00	8,072,193.69	100.00	7,684,271.93	100.00

	1912		1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
Gulf Pipe Line Co. of Oklahoma	7,206,967.04	100.00	7,744,059.85	100.00	8,127,126.66	100.00
DELIVERIES.						
Gulf Pipe Line Co.	7,383,533.02	98.64	7,272,713.03	98.23	7,694,859.80	99.52
Gulf Refining Co.	3,789.60	.05	78,282.24	1.06	189.88	....
Laurel Oil & Gas Co.	93,165.39	1.24	51,132.22	.69	35,425.96	.46
Gypsy Oil Co.	336.59	.01	190.06	....	....	....
Gulton Bag & Cotton Co.	239.61	....	....	....	....	....
The Davis Oil & Gas Co.	713.92	.01	174.22	....	....	....
Creo Oil Co.	1,208.47	.02	....	....	....	....
Goodyear Oil Co.	162.24	....	....	....	....	....
Walsh Oil Co.	175.59	....	....	....	....	....
Maumee Oil & Gas Co.	9.60	....	....	....	....	....
E. W. Moore	231.12	....	....	....	....	....
Closser & Pees Drilling Co.	276.41	.01	....	....	....	....
Aurora Oil & Gas Co.	319.92	.01	....	....	....	....
Kemp & Hayden	205.43	....	....	....	....	....
Owasso Oil Co.	123.71	....	....	....	....	....
D. F. Craig	151.17	....	....	....	....	....
Keystone Oil Co.	68.76	....	....	....	....	....
Ross & Gries	223.23	....	....	....	....	....
Kansas Oil Co.	173.64	....	....	....	....	....
Joanna Oil Co.	202.35	....	128.08	....	....	....
J. T. Duffield	184.45	....	....	....	....	....
J. A. Hull	308.03	.01	....	....	....	....
D. A. Hammett et al.	....	....	243.67	.01	....	....
Roger Kemp	....	....	364.61	.01	....	....
Iron Mountain Oil Co.	....	....	50.39	....	....	....
National Oil & Development Co.	....	....	204.82	....	....	....
Mason & Overlees	....	....	110.34	....	....	....
Producers Oil Co.	....	....	....	....	734.32	.01
Wilburine Oil Works	....	....	....	....	547.96	.01
Total	7,485,802.25	100.00	7,403,593.68	100.00	7,731,757.92	100.00

Deliveries of crude oil by pipe lines—Continued.

MAGNOLIA PIPE LINE COMPANY.

	Mar., 1914.		Apr., 1914.		May, 1914.	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
Magnolia Pipe Line Co........	[1] 211,497.28	100.00	119,257.55	100.00	195,656.09	100.00
DELIVERIES.						
Magnolia Petroleum Co.......	[1] 211,497.28	100.00	119,257.55	100.00	195,656.09	100.00

	June, 1914.		July, 1914.		Aug., 1914.	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
Magnolia Pipe Line Co........	305,628.57	100.00	332,778.70	100.00	396,799.97	100.00
DELIVERIES.						
Magnolia Petroleum Co.......	305,628.57	100.00	332,778.70	100.00	396,799.97	100.00

	Sept., 1914.		Oct., 1914.		Nov., 1914.	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
Magnolia Pipe Line Co........	420,369.14	100.00	337,755.04	100.00	178,628.02	100.00
DELIVERIES.						
Magnolia Petroleum Co.......	420,369.14	100.00	337,755.04	100.00	178,628.02	100.00

	Dec., 1914.		Total, 1914.	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.				
Magnolia Pipe Line Co............................	260,002.04	100.00	2,758,372.40	100.00
DELIVERIES.				
Magnolia Petroleum Co...........................	260,002.04	100.00	2,758,372.40	100.00

NATIONAL PIPE LINE COMPANY.

	1905		1906		1907	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
National Refining Co. (Ohio)..	374,762.28	100.00	512,102.49	100.00	537,354.03	100.00
DELIVERIES.						
National Refining Co. (Ohio)..	367,252.68	100.00	504,226.46	100.00	535,158.38	100.00

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[1] Production purchased during January and February included in March account on books of this company.

Deliveries of crude oil by pipe lines—Continued.

NATIONAL PIPE LINE COMPANY—Continued.

	1908		1909		1910	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
National Refining Co. (Ohio)..	567,141.41	100.00	513,773.68	100.00	545,559.94	100.00
DELIVERIES.						
National Refining Co. (Ohio)..	566,841.24	100.00	516,552.15	100.00	586,911.97	100.00

	1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.				
National Refining Co. (Ohio)........................	534,712.68	100.00	152,312.87	100.00
DELIVERIES.				
National Refining Co. (Ohio)........................	532,760.72	100.00	171,496.52	100.00

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.				
National Refining Co. (Ohio)........................	160,928.93	100.00	148,189.45	100.00
DELIVERIES.				
National Refining Co. (Ohio)........................	163,636.89	100.00	152,634.96	100.00

NATIONAL REFINING COMPANY (OKLAHOMA).

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
National Refining Co. (Ohio)..	95,022.33	100.00	518,622.59	100.00	526,223.64	100.00
DELIVERIES.						
National Refining Co. (Ohio)..	95,022.33	100.00	518,622.59	100.00	526,223.64	100.00

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
National Refining Co. (Ohio)..	852,562.50	100.00	1,751,117.86	100.00	1,615,423.02	100.00
DELIVERIES.						
National Refining Co. (Ohio)..	670,582.08	100.00	1,831,206.50	100.00	1,450,585.25	100.00

Deliveries of crude oil by pipe lines—Continued.

NATIONAL REFINING COMPANY (OKLAHOMA)—Continued.

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.				
National Refining Co. (Ohio)	1,670,158.87	100.00	1,285,569.86	100.00
DELIVERIES.				
National Refining Co. (Ohio)	1,811,525.46	100.00	1,344,720.83	100.00

THE NOWATA PIPE LINE COMPANY.

	1909		1910		1911	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
Cudahy Refining Co	166,167.56	100.00	734,656.03	100.00	920,349.14	100.00
DELIVERIES.						
Cudahy Refining Co	166,167.56	100.00	718,354.20	100.00	919,866.60	100.00

	1912		1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
Cudahy Refining Co	1,047,333.67	100.00	973,897.27	100.00	815,380.22	100.00
DELIVERIES.						
Cudahy Refining Co	1,014,694.83	100.00	1,012,925.87	100.00	819,390.89	100.00

THE PRODUCERS AND REFINERS OIL COMPANY.

	1893		1894		1895	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Producers and Refiners Oil Co	1,203,114.85	100.00	1,188,552.47	100.00	1,524,133.13	100.00

	1896		1897		1898	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Producers and Refiners Oil Co	1,882,388.64	100.00	1,245,428.55	100.00	1,276,651.41	100.00

Deliveries of crude oil by pipe lines—Continued.

THE PRODUCERS AND REFINERS OIL COMPANY—Continued.

	1899		1900		1901	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Producers and Refiners Oil Co	1,307,724.75	100.00	1,340,122.69	100.00	1,191,701.28	100.00

	1902		1903		1904	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Producers and Refiners Oil Co	1,744,417.43	100.00	2,130,089.48	100.00	2,137,737.48	100.00

	1905		1906	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.				
The Producers & Refiners Oil Co	1,994,263.24	100.00	2,787,954.49	100.00

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Producers and Refiners Oil Co	2,693,781.68	100.00	2,407,052.70	100.00	2,509,638.87	100.00
DELIVERIES.						
Starlight Refining Co., Karns City, Pa	7,661.95	.28	11,334.51	.47	14,006.29	.56
Titusville Oil Works, Titusville, Pa	163,999.65	6.08	128,437.98	5.37	167,675.44	6.71
Penn Refining Co., Ltd., Oil City, Pa	320,622.32	11.88	300,309.12	12.55	324,076.88	12.99
Germania Refining Co., Oil City, Pa	366,488.11	13.58	349,330.08	14.60	398,974.54	15.99
Crystal Oil Works, Oil City, Pa	184,008.01	6.81	164,151.05	6.86	146,376.58	5.87
American Oil Works, Ltd., Titusville, Pa	210,039.06	7.80	218,985.05	9.15	183,937.19	7.37
Continental Refining Co., Ltd., Oil City, Pa	187,050.38	6.93	176,404.66	7.37	158,464.94	6.35
Independent Refining Co., Ltd., Oil City, Pa	281,705.99	10.44	277,741.14	11.61	246,626.51	9.88
Empire Oil Works, Oil City, Pa	177,574.96	6.58	167,794.12	7.02	140,110.51	5.62
Pennsylvania Refining Co., Karns City, Pa	7,415.30	.27	4,579.94	.19	6,847.11	.28
Canfield Oil Co., Cleveland, Ohio	....	....	....	....	3,075.61	.12
United States Pipe Line Co., Titusville, Pa	780,160.44	28.92	593,536.07	24.81	705,085.68	28.26
Pure Oil Pipe Line Co., Philadelphia, Pa	11,531.11	.43	....	....	....	....
Total	2,698,252.28	100.00	2,392,603.67	100.00	2,495,207.28	100.00

Deliveries of crude oil by pipe lines—Continued.

THE PRODUCERS AND REFINERS OIL COMPANY—Continued.

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Producers and Refiners Oil Co	2,244,192.77	100.00	2,083,627.54	100.00	1,939,256.64	100.00
DELIVERIES.						
Starlight Refining Co., Karns City, Pa	14,803.89	.66	11,046.12	.53	9,948.89	.50
Titusville Oil Works, Titusville, Pa	126,901.39	5.67	120,519.66	5.80	157,294.86	7.97
Penn Refining Co., Ltd., Oil City, Pa	243,828.18	10.90	205,132.90	9.87	258,846.39	13.12
Germania Refining Co., Oil City, Pa	258,515.64	11.56	234,222.86	11.27	309,364.81	15.68
Crystal Oil Works, Oil City, Pa	141,156.44	6.31	142,904.02	6.88	168,213.64	8.52
American Oil Works, Ltd., Titusville, Pa	160,693.40	7.19	153,812.94	7.40	199,580.81	10.11
Continental Refining Co., Ltd., Oil City, Pa	128,085.60	5.73	118,622.30	5.71	170,669.82	8.65
Independent Refining Co., Ltd., Oil City, Pa	211,559.23	9.46	206,500.84	9.94	273,227.20	13.84
Empire Oil Works, Oil City, Pa	121,613.69	5.44	115,867.50	5.58	151,854.12	7.70
Pennsylvania Refining Co., Karns City, Pa	10,561.38	.47	8,813.22	.42	9,190.79	.47
Canfield Oil Co., Cleveland, Ohio	....	....	2,762.42	.13	....	....
Robinson Oil Co. (B. S.), Pittsburgh, Pa	2,441.28	.11	167.47	.01	....	....
United States Pipe Line Co., Titusville, Pa	731,611.60	32.72	265,952.52	12.80	105,071.98	5.32
Pure Oil Pipe Line Co., Philadelphia, Pa	84,446.91	3.78	491,941.32	23.66	160,168.42	8.12
Total	2,236,218.63	100.00	2,078,266.09	100.00	1,973,431.73	100.00

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.				
The Producers and Refiners Oil Co	2,518,142.66	100.00	2,331,498.32	100.00
DELIVERIES.				
Starlight Refining Co., Karns City, Pa	6,958.38	.30	7,385.13	.36
Titusville Oil Works, Titusville, Pa	156,926.33	6.71	81,174.85	3.97
Penn Refining Co., Ltd., Oil City, Pa	270,604.09	11.56	184,191.80	9.01
Germania Refining Co., Oil City, Pa	298,277.38	12.74	318,423.28	15.57
Crystal Oil Works, Oil City, Pa	190,194.01	8.13	95,072.32	4.65
American Oil Works, Ltd., Titusville, Pa	233,745.50	9.99	180,714.81	8.83
Continental Refining Co., Ltd., Oil City, Pa	149,527.60	6.39	40,533.31	1.98
Independent Refining Co., Ltd., Oil City, Pa	263,244.16	11.25	218,159.13	10.66
Empire Oil Works, Oil City, Pa	139,802.74	5.97	108,968.95	5.33
Pennsylvania Refining Co., Karns City, Pa	7,008.69	.30	9,470.60	.46
Germania No. 2, Oil City, Pa	....	....	71,995.56	3.52
Petroleum Products Co	229.03	.01	....	....
Pure Oil Pipe Line Co., Philadelphia, Pa	623,764.40	26.65	729.270.30	35.66
Total	2,340,282.31	100.00	2,045,360.04	100.00

Deliveries of crude oil by pipe lines—Continued.

THE TEXAS COMPANY.

	Jan., 1914.		Feb., 1914.		Mar., 1914.	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
The Texas Co	1,305,556.55	98.30	1,231,068.62	99.56	1,642,986.02	99.70
B. W. Armstrong	4,613.06	.35	607.31	.05	300.00	.02
Others	18,005.53	1.35	4,796.54	.39	4,636.15	.28
Total	1,328,175.14	100.00	1,236,472.47	100.00	1,647,922.17	100.00
DELIVERIES.						
The Texas Co	1,119,735.47	79.53	1,004,673.95	80.42	1,171,812.47	81.84
Railroads and others	273,572.16	19.43	241,704.40	19.35	257,245.96	17.97
The Texas Oil Co	4,145.74	.29	2,856.20	.23	2,751.76	.19
Central Petroleum Co	10,599.32	.75	....	....	....	....
Total	1,408,052.69	100.00	1,249,234.55	100.00	1,431,810.19	100.00

	Apr., 1914.		May, 1914.		June, 1914.	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
The Texas Co	2,241,848.27	99.61	1,439,899.38	99.06	1,825,560.57	99.04
B. W. Armstrong	4,329.54	.19	7,978.60	.55	10,034.16	.54
Markham Sales Co	382.58	.02	2,305.12	.16	4,393.82	.24
Others	3,987.27	.18	3,346.99	.23	3,197.68	.18
Total	2,250,547.66	100.00	1,453,530.09	100.00	1,843,186.23	100.00
DELIVERIES.						
The Texas Co	1,218,853.90	84.07	1,041,661.21	83.77	1,223,822.11	87.43
Railroads and others	223,899.55	15.44	191,365.35	15.39	122,903.09	8.78
The Texas Oil Co	6,145.43	.43	10,477.84	.84	52,990.31	3.79
Gulf Refining Co	840.54	.06	....	....	....	....
Total	1,449,739.42	100.00	1,243,504.40	100.00	1,399,715.51	100.00

	July, 1914.		Aug., 1914.		Sept., 1914.	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.						
The Texas Co	1,634,575.04	98.97	1,547,241.91	99.12	1,294,715.19	99.37
B. W. Armstrong	7,282.79	.44	5,381.01	.34	4,032.68	.31
Markham Sales Co	2,821.76	.17	2,695.80	.17	209.65	.02
Others	6,912.64	.42	5,774.25	.37	3,973.50	.30
Total	1,651,592.23	100.00	1,561,092.97	100.00	1,302,931.02	100.00
DELIVERIES.						
The Texas Co	1,429,094.66	90.88	1,544,147.70	85.46	1,474,281.30	83.44
Railroads and others	101,947.50	6.49	138,051.59	7.63	159,399.50	9.03
The Texas Oil Co	41,378.89	2.63	124,643.66	6.91	133,123.85	7.53
Total	1,572,421.05	100.00	1,806,842.95	100.00	1,766,804.65	100.00

Deliveries of crude oil by pipe lines—Continued.

THE TEXAS COMPANY—Continued.

	Oct., 1914.		Nov., 1914.	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.				
The Texas Co	1,135,636.69	98.92	1,361,447.76	99.32
B. W. Armstrong	4,417.08	.38	4,664.74	.34
J. M. Abbott	3,896.25	.34	1,090.30	.08
Markham Sales Co	2,481.29	.22	2,111.61	.15
Others	1,644.75	.14	1,502.25	.11
Total	1,148,076.06	100.00	1,370,816.66	100.00
DELIVERIES.				
The Texas Co	1,406,099.23	85.84	1,147,440.51	88.69
Railroads and others	154,230.95	9.42	108,360.83	8.38
The Texas Oil Co	77,701.78	4.74	38,001.45	2.93
Total	1,638,031.96	100.00	1,293,802.79	100.00

	Dec., 1914.		Total, 1914.	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.				
The Texas Co	1,396,424.62	99.52	18,056,960.62	99.23
B. W. Armstrong	5,220.91	.37	58,861.88	.32
J. M. Abbott	....	....	4,986.55	.03
Markham Sales Co	565.13	.04	17,966.76	.10
Others	941.40	.07	58,718.95	.32
Total	1,403,152.06	100.00	18,197,494.76	100.00
DELIVERIES.				
The Texas Co	1,139,745.83	81.28	14,921,368.34	84.48
Railroads and others	254,186.23	18.12	2,226,867.11	12.61
The Texas Oil Co	8,362.72	.60	502,579.63	2.85
Central Petroleum Co	....	....	10,599.32	.06
Gulf Refining Co	....	....	840.54	....
Total	1,402,294.78	100.00	17,662,254.94	100.00

Note.—Figures do not include fuel oil.

THE PRAIRIE OIL AND GAS COMPANY.

	1904		1905		1906	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Prairie Oil and Gas Co	5,603,036.41	100.00	11,854,822.04	100.00	21,194,156.15	100.00
DELIVERIES.						
Standard Oil Co. of Kansas, Neodesha, Kans	826,868.52	77.40	1,177,804.01	31.67	1,614,659.42	14.37
Standard Oil Co. of Indiana, Sugar Creek, Mo	241,459.59	22.60	2,268,521.21	61.00	3,585,178.59	31.91
Standard Oil Co. of Indiana, Whiting, Ind	....	....	266,350.32	7.16	2,923,785.35	26.03
Standard Oil Co. of New York, Buffalo, N. Y	....	....	....	....	99,310.94	.89
Atlas Refining Co. (invoiced to P. S. Trainor), Buffalo, N. Y	....	....	....	....	427,347.41	3.81
Standard Oil Co. (New Jersey), Unionville	....	....	....	....	382,142.15	3.40
Invoiced to P. S. Trainor	....	....	....	....	1,113,666.44	9.91
Standard Oil Co. (New Jersey), Centerbridge, Pa	....	....	....	....	14,249.63	.13
Long Island Refinery, invoiced to P. S. Trainor	....	....	....	....	716,100.69	6.37

Deliveries of crude oil by pipe lines—Continued.

THE PRAIRIE OIL AND GAS COMPANY—Continued.

	1904		1905		1906	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
DELIVERIES—continued.						
Philadelphia Refinery, invoiced to P. S. Trainor					22,908.65	0.20
Kings County Refineries, invoiced to P. S. Trainor					200,609.80	1.79
The Prairie Oil and Gas Co. (fuel)			5,712.47	0.15	84,564.51	.75
Fire loss			293.44	.01	49,862.52	.44
Other losses			217.97	.01		
Total	1,068,328.11	100.00	3,718,899.42	100.00	11,234,386.10	100.00

	1907		1908		1909	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Prairie Oil and Gas Co.	35,610,339.82	100.00	33,266,281.48	100.00	28,773,726.98	100.00
DELIVERIES.						
Standard Oil Co. of Kansas, Neodesha, Kans	2,028,635.79	8.25	1,709,748.01	7.02	2,461,850.75	9.31
Standard Oil Co. of Indiana, Sugar Creek, Mo	5,095,716.00	20.72	4,365,985.30	17.93	4,587,053.09	17.34
Standard Oil Co. of Indiana, Whiting, Ind	8,694,261.65	35.36	8,091,682.19	33.24	8,004,207.61	30.26
Standard Oil Co. of New York, Buffalo, N. Y	938,125.53	3.82	610,454.40	2.51	654,098.31	2.47
Standard Oil Co. of New York, Olean, N. Y	588,103.44	2.39	292,970.44	1.20	293,352.75	1.11
Standard Oil Co. (New Jersey), Unionville	1,947,288.65	7.92				
Invoiced to P. S. Trainor	369,927.51	1.50	3,731,802.83	15.33	4,410,514.37	16.68
Standard Oil Co. (New Jersey), Centerbridge, Pa	1,848,215.31	7.52				
Invoiced to P. S. Trainor	310,053.48	1.26	2,103,052.86	8.64	2,546,605.69	9.63
Standard Oil Co. (New Jersey), Fawn Grove, Pa	515,544.18	2.10				
Invoiced to P. S. Trainor	129,488.84	.53	626,424.92	2.57	494,393.45	1.87
Standard Oil Co. of Louisiana, Baton Rouge, La. (cars)					125,629.95	.48
Atlantic Refining Co., Philadelphia, Pa	132,453.27	.54	1,912,822.58	7.85	2,378,114.33	8.99
Security Oil Co., Beaumont, Tex. (cars)	1,477,085.10	6.01	277,325.73	1.14		
Navarre Refining Co., Corsicana, Tex. (cars)	14,176.61	.06				
Corsicana Refining Co., Corsicana, Tex. (cars)	273,810.33	1.11				
The Prairie Oil and Gas Co. (fuel)	132,321.41	.54	374,749.15	1.54	335,636.13	1.27
Fire loss	83,886.35	.34	234,037.99	.96	147,088.74	.56
Other losses	739.16					
American Steel Foundry Co., East St. Louis, Ill.[1]	5,827.79	.02	241.04			
National Enameling & Stamping Co., Granite City, Ill.[1]	2,649.53	.01	2,660.35	.01		
Great Western Portland Cement Co., Mildred, Kans.[1]					5,837.43	.02
Commonwealth Steel Co., Granite City, Ill.[1]	962.60		1,393.89	.01		
Scullen-Gallagher Iron & Steel Co., St. Louis, Mo.[1]			1,444.71	.01		
United States Portland Cement Co., Yocemento, Kans.[1]			6,455.36	.03	1,608.42	.01
American Steel Foundry Co., East St. Louis, Ill.[1]	481.30		287.79			
Bonner Portland Cement Co., Bonner Springs, Kans.[1]			1,696.95	.01		
Hutchinson Salt Co.[1]					330.31	
Total	24,589,703.83	100.00	24,345,236.49	100.00	26,446,321.33	100.00

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[1] These shipments moved in tank cars and were invoiced to Standard Oil Co. of Indiana.

Deliveries of crude oil by pipe lines—Continued.

THE PRAIRIE OIL AND GAS COMPANY—Continued.

	1910		1911		1912	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASER.						
The Prairie Oil and Gas Co.	31,587,312.59	100.00	34,770,922.72	100.00	30,940,068.59	100.00
DELIVERIES.						
Standard Oil Co. of Kansas, Neodesha, Kans	3,996,460.17	12.12	4,033,847.37	12.67	3,145,434.98	8.76
Standard Oil Co. of Indiana, Sugar Creek, Mo	6,426,036.46	19.49	7,027,930.19	22.08	6,661,946.12	18.54
Standard Oil Co. of Indiana, Whiting, Ind	10,531,934.12	31.95	10,098,602.10	31.74	11,931,035.45	33.21
Standard Oil Co. of New York, Buffalo, N. Y	1,137,935.59	3.45	1,120,942.42	3.52	1,157,455.53	3.22
Standard Oil Co. (New Jersey), Unionville			694,477.40	2.19	6,154,455.40	17.13
Invoiced to P. S. Trainor	2,170,806.45	6.59	3,164,252.93	9.94		
Standard Oil Co. (New Jersey), Centerbridge, Pa					300,000.00	.84
Invoiced to P. S. Trainor	2,961,256.65	8.98	414,399.88	1.30		
Standard Oil Co. of Louisiana, Baton Rouge, La. (cars)	302,049.61	.92				
Standard Oil Co. of Louisiana, Ida, La	2,151,749.43	6.52	2,298,068.44	7.22	1,703,568.91	4.74
Atlantic Refining Co., Philadelphia, Pa	2,892,435.50	8.77	2,579,212.99	8.11	2,620,915.72	7.30
Atlantic Refining Co., Marcus Hook, Pa					295,995.79	.82
Saddle River Oil Co., Unionville, N. Y					1,564,859.70	4.36
Northern Pipe Line Co. (fuel)			1,285.91	.01		
National Transit Co. (fuel)			1,896.40	.01	1,256.36	
Oklahoma Pipe Line Co. (fuel)	17,976.01	.05	16,622.42	.05	24,085.15	.07
The Prairie Oil and Gas Co. (fuel)	313,521.17	.95	330,118.33	1.03	362,393.61	1.01
George Robinson (fuel), Independence, Kans			396.28			
White & Mason (fuel), Independence, Kans					332.76	
A. B. Reese (fuel), Tulsa, Okla.					194.51	
Fire loss	54,618.87	.18	20,445.46	.06	844.30	
Other losses					100.00	
Great Western Portland Cement Co., Mildred, Kans.[1]	6,537.88	.02				
United States Portland Cement Co., Yocemento, Kans.[1]	241.12		10,639.16	.03		
Concordia Ice & Cold Storage Co., Hays City, Kans.[1]			966.40	.01		
Buffalo Brick Co.[1]	725.52		4,724.16	.02		
Hays City Milling & Elevator Co., Concordia, Kans.[1]			723.98			
The Topeka Edison Co.[1]			963.15	.01		
Iola Portland Cement Co., Iola, Kans.[1]	3,443.06	.01				
New Era Milling Co.[1]			483.64		240.90	
Goodland Ice & Cold Storage Co., Goodland, Kans.[1]			723.52			
Total	32,967,727.61	100.00	31,821,722.53	100.00	35,925,115.19	100.00

[1] These shipments moved in tank cars and were invoiced to Standard Oil Co. of Indiana.

Deliveries of crude oil by pipe lines—Continued.

THE PRAIRIE OIL AND GAS COMPANY—Continued.

	1913		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
PURCHASERS.				
The Prairie Oil and Gas Co	38,720,241.97	100.00	40,366,860.51	99.02
R. S. Ayers			200,000.00	.49
Cortez Oil Co. and Alvarada Oil Co			200,000.00	.49
Total	38,720,241.97	100.00	40,766,860.51	100.00
DELIVERIES.				
Standard Oil Co. of Kansas, Neodesha, Kans	2,317,026.34	6.78	1,005,074.06	2.54
Standard Oil Co. of Indiana, Sugar Creek, Mo	4,896,193.71	14.32	5,090,703.07	12.85
Standard Oil Co. of Indiana, Whiting, Ind	10,576,701.28	30.95	10,792,551.79	27.25
Standard Oil Co. of Indiana, Wood River, Ill	187,247.78	.55	3,261,044.39	8.23
Standard Oil Co. of New York, Buffalo, N. Y	1,136,205.01	3.32	1,142,555.91	2.88
Standard Oil Co. (New Jersey), Unionville	2,870,174.93	8.40	2,699,497.68	6.81
Standard Oil Co. (New Jersey), Centerbridge, Pa	100,000.00	.29	304,486.47	.77
Standard Oil Co. (New Jersey), Fawn Grove, Pa	24,591.33	.07	1,372,096.54	3.46
Standard Oil Co. of Indiana, Wood River, Ill. (cars)	236.40			
Standard Oil Co. of Louisiana, Baton Rouge, La. (cars)	626,694.65	1.83	25,140.88	.06
Standard Oil Co. of Louisiana, Ida, La	2,209,021.58	6.46	2,344,039.17	5.92
Atlantic Refining Co, Philadelphia, Pa	3,024,095.98	8.85	1,804,615.86	4.56
Atlantic Refining Co., Marcus Hook, Pa			875,781.20	2.22
The Ohio Oil Co., Wood River, Ill	21,618.54	.06	3,766,501.03	9.51
Saddle River Oil Co., Unionville, N. Y	5,729,644.21	16.76	2,861,331.35	7.23
Oklahoma Pipe Line Co. (fuel)	30,197.71	.09	36,557.85	.09
The Prairie Oil and Gas Co. (fuel)	431,536.20	1.26	448,583.63	1.13
Atlantic Refining Co., Pittsburgh, Pa			97,159.39	.25
Standard Oil Co. (New Jersey), Baltimore, Md			463,346.22	1.17
Standard Oil Co. (New Jersey), Bayonne, N. J			479,850.08	1.21
Standard Oil Co. of New York, Brooklyn, N. Y			693,946.46	1.75
Fire loss	3,740.98	.01	43,058.26	.11
Other losses			30.00	
Vacuum Oil Co., Olean, N. Y	956.52			
Total	34,185,883.15	100.00	39,607,951.29	100.00

APPENDIX III.

[Letter.]

OIL CITY, PA., *March 16, 1915.*

Mr. D. S. BUSHNELL,

President Buckeye Pipe Line Company, No. 26 Broadway, New York, N. Y.

DEAR SIR: Will you kindly advise me, at your convenience, if at any time during 1914 your company refused to take into its lines all or any part of the crude petroleum produced in the fields to which its lines are connected, and if so, will you please give the reasons for such refusal, and what effect, if any, in your opinion, such refusal had upon the oil production, especially upon property already developed in the territory covered by the operations of your company.

Yours, very truly,

CHAS. E. MOSSER, *Examiner.*

[Letter.]

NEW YORK, *April 6, 1915.*

Mr. CHAS. E. MOSSER,

Examiner, Interstate Commerce Commission, Oil City, Pa.

DEAR SIR: Your letter of March 16 duly received, wherein you inquire if, at any time during the year 1914, the Buckeye Pipe Line Company refused to take into its lines all or any part of the crude petroleum produced in the fields to which its lines are connected, and if so, desiring the reasons for such refusal and what effect, if any, in our opinion, such refusal had upon the oil production, especially upon property already developed in the territory covered by the operations of our company.

I would state that at no time during 1914 did this company refuse to take into its lines or tanks any crude petroleum tendered to it in its North or South Lima divisions, or produced from wells within its Lima divisions to which its lines were connected; also that at no time during 1914 did this company refuse to take into the lines or tanks of its Cygnet division any crude petroleum tendered to it for transportation. During the summer of 1914, however, this company did notify producers of crude petroleum who were its patrons in its Macksburg division, and to whose wells its lines were connected in its Macksburg division, that it was obliged to reduce or curtail the runs made from such wells into its lines or tanks in that division, as set forth in detail herewith.

An examination of general business conditions in the early spring of 1914, indicating the possibility of reduced shipments, affected by the immense production of cheaper crude from the Midcontinent field coming into competition with the higher priced Pennsylvania grade crude produced in the Macksburg division, caused us to begin to erect more tankage in our Macksburg division, although we had had tankage which formerly, when the field was larger, had been sufficient for its requirements. From May to the latter part of August, 1914, we arranged from time to time to erect a total of nine steel tanks in this division, totaling about 280,000 barrels additional tankage, and costing us $62,000. It may be proper to state here that we have at the time of this writing nearly 768,000 barrels of iron and steel tankage, and nearly 91,000 barrels of wooden tankage in this division, a total of about 859,000 barrels, which is about 400,000 barrels more tankage than was in the division as of January 1, 1912, up to which time, as stated above, the tankage was found to be amply sufficient to meet all requirements. Of course, you will appreciate that in referring to additional tankage being built, which is mentioned above, it was not all completed nor available in time to meet the situation. We began building this tankage in April and were still building it in October, but the tanks were completed from time to time and put into use.

Our runs from wells in our Macksburg division during the month of July, 1914, averaged 10,590 barrels per day. Shipments, however, during that month averaged but 5,551 barrels per day. (In these and succeeding figures I am omitting fractions of a barrel.) Therefore, to further care for the situation during the month of July, we shipped 160,000 barrels of crude via connecting carriers to our tankage at Mantua, which is in the Cygnet division. This was done at a cost to us of about $24,000, paid to connecting carriers as their portion of the through transportation. This amount of tankage was all we felt we could spare at Mantua, requiring the balance of available tankage at that point to properly handle current business from the west.

It will be seen that the total cost of the tankage erected to meet the general situation, in addition to the transportation paid to other carriers just referred to, amounted in all to about $86,000.

On August 1, on account of the outbreak of the European war and the demoralization which followed, finally resulting in total cessation of shipments on August 7, our field gaugers were instructed to reduce runs as far as possible in order to properly take care of all producers and all wells to which our lines were connected, and so as to treat all producers and patrons alike. August 1 being a Saturday, this was not made actually effective until August 3. On August 10 the situation, on account of absolute cessation of shipments above mentioned, became so acute that notice was sent to producers that beginning August 15 we could only run into our lines one-third of such producers' average production in our Macksburg division from wells connected to our lines. Taking the whole month of August, the average daily shipments fell to about 961 barrels, but this is based practically on shipments made between the 1st and the 6th, inclusive, after the latter date there being practically no shipments made for the balance of the month. Because of the reduction in runs above noted, these averaged about 4,000 barrels per day during August.

During the latter part of September shipments increased, and we therefore notified our patrons that beginning September 25 we would be in position to handle two-thirds of their average production. The outlook still further improving, instructions were issued to take all oil run from producers' wells, which was done, beginning September 28. The production for the month of September averaged nearly 6,900 barrels per day; shipments, 7,664 barrels per day.

During the month of October runs averaged 12,231 barrels per day; shipments, 12,954 barrels per day.

During the month of November runs averaged 8,945 barrels per day; shipments, 7,618 barrels per day.

During December runs averaged 9,107 barrels per day; shipments, 8,000 barrels per day.

The situation is further indicated by showing that on May 1 stocks of crude in the Macksburg division were 467,133 barrels. At the end of July they were 541,162 barrels, and 160,000 barrels additional had been shipped into the custody of our Cygnet division, or a total of over 700,000 barrels of Pennsylvania grade crude in our custody. At the end of September stocks were 607,922 barrels, with the 160,000 barrels above noted in addition. Attached herewith is sheet showing daily average runs and shipments for months of May to September, inclusive, and stocks at the first of each month and the end of September 30 in addition.

Answering your inquiry as to what effect, if any, in our opinion the curtailment of runs had upon the oil production, especially upon property already developed in the territory covered by the operations of our company: Of course, we can only speak in connection with producing property to which our lines were connected, but it is our opinion that the curtailment had no injurious effect on the greater number of wells connected to our lines. It was our aim to treat all producers *exactly alike*, and hence where a producer had a well or wells making water it became necessary for him to set a tank to keep these wells operating; otherwise they might have been injured by shutting down or curtailing production taken from them. Careful inquiry in our Macksburg division showed that our patrons appreciated what we were endeavoring to do to meet the situation, and they cooperated with us to meet the emergency.

Furthermore, a comparison of the average production per well per day from our Macksburg division with similar production from other adjacent fields would seem to confirm the above opinion. The following figures are based on six months from February 1 to July 31, 1914, compared with five months from October 1, 1914, to February 28, 1915 (the latest available figures at this writing), the intervening two months being those which were affected by the irregular production.

Designating the average production per well per day during the first period as "A" and that during the second period as "B," the following comparison can be made:

Macksburg division:	Per cent.
Pennsylvania grade, "B" decreased	7.56
Corning grade, "B" decreased	5.92
Newcastle grade, "B" increased	21.10

Comparing the average production per well per day for the same periods in other lines shows as follows:

	Per cent.
N. Y. T. Co., local division, Pennsylvania grade, "B" decreased	11.64
B. P. L. Co.:	
North Lima division, North Lima oil, "B" decreased	12.66
South Lima division, South Lima oil, "B" decreased	14.09
Ind. P. L. Co., local division, Indiana crude, "B" decreased	8.68

although in every one of these cases there was no curtailment or interference with runs, as you have already been advised. Furthermore, the average production per well per day of Pennsylvania grade crude in the Macksburg division for the month of February, 1914, was 0.85 barrel. Production of the same grade of crude for the month of February, 1915 (the latest figures available at this writing), was 0.86 barrel, these figures thus showing the ability of the wells to produce the same as before the curtailment of runs.

In examining the foregoing figures, due consideration must be given to the effect that a decreased price for crude would have on the field operations. The price decreased on Pennsylvania grade crude from $1.90 per barrel in May, 1914, to $1.45 per barrel at the end of August, 1914. Many wells will be cleaned out and operated when the price is high, where at a low price they will be pulled and abandoned. Thus, during 1913 the production of Pennsylvania grade crude connected to our lines in our Macksburg division decreased about 16 per cent below that of 1912, although the price in the former year increased from $2 to $2.50 per barrel. The effect of this price was not reflected until the year 1914, when the decrease in production between 1914 and 1913 amounted to only 4.39 per cent, although the price of the crude during the latter year fell from $2.40 to $1.45 per barrel. Of course, another factor entering into the reduced production, both total and per well per day, is that the so-called Pennsylvania grade field in our Macksburg division is a declining field.

Trusting the foregoing will give you the desired information, I am,

Yours, very truly,

D. S. Bushnell,
President The Buckeye Pipe Line Company.

The Buckeye Pipe Line Company, Macksburg division.

[Quantities stated in barrels of 42 gallons.]

	Total stocks 7 a. m. 1st of month.	Average daily runs from wells during month.	Average daily shipments or transfers during month.
May	467,133.40	10,083.22	10,742.31
June	458,039.38	10,571.81	8,082.51
July	[1] 539,000.43	10,589.87	[2] 5,550.93
August	[1] 541,162.06	4,006.31	960.82
September	[1] 637,202.34	6,895.25	7,663.76
September 30	[1] 607,922.56		
October 1			

[1] To this should be added 160,000 barrels in stock at Mantua.

[2] To this should be added 5,161 barrels per day pumped to Mantua tankage.

[Letter.]

DECEMBER 11, 1914.

Mr. FORREST M. TOWL, *President, New York.*

DEAR SIR: Will you kindly advise me, at your convenience, if at any time your company refused to take into its lines all or any part of the crude petroleum produced in the fields to which the Cumberland pipe lines are connected; and, if so, will you please give the reasons for such refusal and what effect, if any, in your opinion, such refusal had upon the oil production, especially upon property already developed in the territory covered by the operations of your company.

Very truly, yours,

CHAS. E. MOSSER, *Examiner.*

[Letter.]

NEW YORK, *January 19, 1915.*

Mr. CHARLES E. MOSSER, *Oil City, Pa.*

DEAR SIR: I herewith hand you the following correspondence relating to the Cumberland Pipe Line Company not taking all of the production during part of 1914:

Letter from Mr. John Bahan, dated December 17, addressed to me.

Letter from Mr. Frank P. Rust, Detroit, Mich., dated August 24, and Mr. Bahan's reply dated August 28.

Copy of letter from Mr. Bahan to gaugers, dated August 7, and copies of five telegrams relating to taking only part of production.

Copies of 13 telegrams exchanged between Mr. Bahan and Mr. Kenney.

Copies of four telegrams in reference to moving tank from Ragland to Somerset.

You will note that we decided to move the tank from Ragland to Somerset on July 30, or before the announcement of the closing of the exchanges and general shutting down of business.

I also inclose letter from me addressed to Mr. Bahan, dated April 3, and copy of Mr. Bahan's reply, at which time Pennsylvania grade oil was selling at $2.50 per barrel and Somerset oil at $1.35 per barrel. If conditions had remained as at that time we would probably have transported a large amount of Somerset oil and cleared out our tankage, which would have left us in better condition to handle this oil later, but on April 17 the prices of oil began to drop very rapidly, both in the eastern and Midcontinent fields, and the prices became so low that it was impossible for us to secure any shipments of Somerset oil. About the 1st of August, no freight having been offered since March 7, the Cumberland Pipe Line Company decided to reduce its rate to 56 cents per barrel. This rate became effective August 15, but no oil being moved for some time, the Cumberland Pipe Line Company decided to make a further reduction of the rate to 50 cents per barrel. Application was made to make this rate effective on short notice, but was refused by the Interstate Commerce Commission. This resulted in some delay in reference to moving oil from Kentucky. The correspondence in reference to this application will be found in the office of Mr. G. N. Powell, traffic manager, Oil City, Pa., should you wish to refer to it.

I believe your attention has already been called to the fact that the South Penn Oil Company, who purchased from the producers a large amount of the oil produced during this period, gave us permission to move some of the oil outside of the state and that under this permission we availed ourselves of some tankage along the lines of the Eureka Pipe Line Company, but even this extra outlet did not permit us to take care of the full production.

I would like to have you return to me the correspondence inclosed herewith, and if you would like to have copies of it and will so indicate, I will have them made for you.

I regret that I have been delayed in forwarding this information to you.

Yours, very truly,

Forrest M. Towl,
President Cumberland Pipe Line Company, Incorporated.

Inclosures.

[Letter.]

Somerset, Ky., *December 17, 1914.*

Mr. Forrest M. Towl,
President, 26 Broadway, New York City.

Dear Sir: Referring to the matter of the Cumberland Pipe Line Company, Incorporated, not taking all of the oil from producers in the state of Kentucky, will say that it was necessary to reduce the amounts run from the producers' wells on account of there being no outlet for the Kentucky oil and our liberal storage capacity being about filled. We would have been able to increase the amount run from the wells earlier but were handicapped by not having shipping orders. Everything possible was done to relieve the congested situation, on the part of the Cumberland Pipe Line Company, Incorporated. It was decided on July 30, 1914, to cut down and move, at a big expense, a 37,000-barrel iron tank located at Ragland, Bath county, Ky., and rebuild at Somerset. The work of moving this tank was done in the best time possible. There was considerable delay experienced in getting the tools to Ragland. The tools were shipped from Morgantown, W. Va., on August 1, 1914, and did not reach Salt Lick, Ky. (the shipping point for Ragland, Ky.), until August 21. It was necessary to convey the tank iron from Ragland by teams over the mountain roads to Salt Lick a distance of 8 miles for shipment to Somerset. This tank was completed at Somerset and put in use storing the Wayne county oil October 21, 1914.

The dates that we reduced the amount run from wells and the approximate stock on hand and the available room is as follows.

August 13, 1914, reduced runs to 50 per cent, or one-half the normal production.

Stock on hand:	Barrels.
Iron tankage	144,162
Wooden tankage	8,027
Total	152,189
Available room	9,668
Wooden tankage	6,828
Total	16,496

September 1, 1914, reduced runs to 25 per cent.

Stock:	Barrels.
Iron tankage	145,570
Wooden tankage	8,179
Total	153,749
Available room:	
Iron tankage	8,250
Wooden tankage	6,730

September 8, 1914, increased to 33⅓ per cent.

Stock:	Barrels.
Iron tankage	146,858
Wooden tankage	8,612
Total	155,470
Available room:	
Iron tankage	6,976
Wooden tankage	7,237

September 28, increased to 66⅔ per cent.

Stock:	Barrels.
Iron tankage	149,920
Wooden tankage	8,101
Total	158,021
Available room:	
Iron tankage	3,897
Wooden tankage	6,744
Total	10,641

October 1, 1914, commenced taking all the production.

Stock:	Barrels.
Iron tankage	151,688
Wooden tankage	8,086
Total	159,774
Available room, iron and wooden tankage	8,955.50
To this room was added Oct. 21, rebuilt tank	37,000

In addition to the above amount of oil stored we had in storage in West Virginia, without shipping orders on—

	Barrels.
July 31	22,957.37
Aug. 31	40,612.62
Sept. 30	49,160.75
Oct. 31	88,738.51

Also stock in pipe amounted to 22,534.83. We took care of all of the production of the Ragland, Bath county, field at all times. Iron tank No. 17 located at this point holds 54,109 barrels and August 1 contained 9,701.07 barrels, but as you know this room is not available for Somerset grade oil.

In my opinion the wells in the Kentucky field have not been permanently injured by the temporary shutdown. Some of the producers profited by suggestion we made to them through a letter addressed to our gaugers dated August 7, a copy of which I herewith inclose.

Yours, truly,

John Bahan.

[Letter.]

NEW YORK, *April 3, 1914.*

MR. JOHN BAHAN,
Vice President, Cumberland Pipe Line Co., Inc., Somerset, Ky.

DEAR SIR: The refineries are not taking the Pennsylvania crude oil as fast as it is being produced. They wish to take Somerset oil as fast as we can offer it to them. For that reason the tankage reserve for Somerset oil at Morgantown is being filled up and the tankage used for Pennsylvania crude oil is also filling. The South Penn Oil Company suggests that it might be possible for us to shut down the Somerset station and accumulate the production in our tanks, leaving only the amount of oil coming into the line northeast of Somerset to go through to the Eureka pipe line.

Will you please let me know how much available room you have for storing oil as per the above plan? We do not want to take any chances of shutting the line down so that it will keep the producers from operating their wells, as I am aware of the fact that the shutting down of the Kentucky wells generally results in the increase of production. Please let me hear from you and if you shut down Somerset and accumulate oil, keep me posted at least every week as to the situation.

Yours, very truly,

FORREST M. TOWL.

[Letter.]

APRIL 6, 1914.

FORREST M. TOWL, *President, New York City.*

DEAR SIR: Your letter of April 3, in regard to storing part of Somerset grade oil, received to-day. We have arranged to shut Somerset station down, and will not allow them to pump again until such time as our available room is nearly full, or receive further instructions from you. We are in good shape to hold the Wayne county production and the oil received from Williamsburg by car, for nearly four months, at present rate of production. I do not anticipate any great increase in the Wayne county production, but expect the new production to keep up the decline in old wells.

We have room as follows:

		Barrels.
Iron tank at Somerset station		91,426
Iron tank at Monticello station		9,280
Iron tank at Manchester		4,549
Total		105,255
Wooden tankage at local stations:		
Sandusky	805	
Steubenville	1,014	
Slickford	846	
Elk Spring V	377	
Parmleyville	471	
Sinking Creek	949	
Denny	613	
Total		5,075
		110,330

which is total room south of and including Manchester. Unless closely crowded for room we had better not figure on the wooden tankage room. The total amount of oil run in Wayne county during January and February, 1914, was 52,066 barrels, and received by U. T. L. tank car, from Williamsburg, during that time 281 barrels.

We will keep you posted in regard to available room every week.

Yours, truly,

JOHN BAHAN, *Vice President.*

[Telegram.]

SOMERSET, KY., *July 31, 1914.*

To A. B. MOORE, *Salt Lick, Ky.:*

It has been decided to move tank number 15 from Ragland to Somerset. Mr. D. L. Jolly will have full charge of this work; please give him any assistance he may ask, also instruct Mr. Sewell and Mr. Thompson to attend to his requests promptly in case you are not at home, as we are in a hurry to have the work completed.

JOHN BAHAN.

[Telegram.]

SOMERSET, KY., *August 3, 1914.*

To D. L. JOLLY, WS:

The last inventory of camping material shows the following at Ragland: One tent 26 by 36, one 6-hole range, 12 cots and camp outfit for 10 men, including blankets, dishes, and cooking utensils. Have wired foreman to have material overhauled. Very likely a great part will be missing or worthless. Will wire you soon as hear from foreman.

JOHN BAHAN.

[Telegram.]

WASHINGTON, PA., *August 3, 1914.*

To JOHN BAHAN, *Somerset, Ky.:*

Telegram received; will rush work on tank 15 as much as possible. Tools were shipped from Morgantown to Salt Lick on August 1. What have you in the way of camp outfits available for use at Ragland? Think I can induce my men from here to board themselves if I can furnish tents and bedding.

D. L. JOLLY.

[Telegram.]

PITTSBURGH, PA., *August 5, 1914.*

To J. BAHAN, *Somerset, Ky.:*

Please shut Somerset station down to Hamlin receipt of this message, as we have no outlet for this oil. You can let your local stations continue for the present, but we may eventually have to shut them down. The Eureka Pipe Line Company is only running 25 per cent of the production and may have to reduce this amount; would advise that you have the matter up with Beget, as the situation is serious on account of war situation in Europe shutting off oil exports.

J. J. KENNEY.

[Telegram.]

SOMERSET, KY., *August 5, 1914.*

To J. J. KENNEY, *Pittsburgh, Pa.:*

Message date received; will shut Somerset station down as requested.

JOHN BAHAN.

[Telegram.]

SOMERSET, KY., *August 5, 1914.*

To ENGINEERS, *Somerset Station:*

Shut down pumping at once account of no room for our oil in the north account of war trouble in Europe.

JOHN BAHAN.

[Telegram.]

SOMERSET, KY., *August 5, 1914.*

To R. P. LEE, *Manchester, Ky.*:

We have orders to shut down Somerset station, or everything south of Licking River, on account of no room in the north for our oil. This will prevent us running Manchester station for the present.

JOHN BAHAN.

[Telegram.]

SOMERSET, KY., *August 5, 1914.*

To A. B. MOORE, *Salt Lick, Ky.*:

We can not start Manchester station or run scrapers for the present as we have orders not to pump any of the oil that is produced south of Licking River, as they have no room for it in the north account of war trouble in Europe.

JOHN BAHAN.

[Telegram.]

SOMERSET, KY., *August 6, 1914.*

To J. J. KENNEY, *Pittsburgh, Pa.*:

Would like to pump about 200 barrels to Hamlin from Manchester to make room for drainage.

JOHN BAHAN.

[Letter.]

SOMERSET, KY., *August 7, 1914.*

Gaugers, Cumberland Pipe Line Co.

DEAR SIR: You will please notify the producers in your district, or their representatives, that on account of there being no outlet for their oil we will probably be able to take but very little of the oil that is being produced, and ask them to do all they can to take care of it themselves.

The Eureka Pipe Line Company, to whom we deliver oil, has been compelled to only take 25 per cent of the West Virginia production for the present, and may be compelled to take less. We are moving a 35,000-barrel tank from Ragland to Somerset, which will give us that much additional room, but we do not intend, nor should we be expected, to build any more tankage.

It is to the producers' interests that they operate only those of their wells that would be injured by not being pumped, and in this way extend the period of operations, as it is obvious that at the present rate of production our limited room will soon be filled.

The war in Europe has created abrupt, unexpected conditions in the oil industry, and it behooves the producers of oil to conform themselves to the present deplorable conditions without delay.

It is likely the amount of oil now being run by you will soon be curtailed. You may continue, for the present, to run oil offered, as usual.

Yours, truly,

JOHN BAHAN, *Vice President.*

[Telegram.]

SOMERSET, KY., *August 12, 1914.*

To A. B. MOORE, JOS. A. GEIGER, and all gaugers except district 12 (Ragland):

Beginning to-morrow, August 13, and until further notice you will run only 50 per cent of the production from each producer, company, or firm. Please advise receipt of this order.

JOHN BAHAN.

[Telegram.]

SOMERSET, KY., *August 18, 1914.*

To J. J. KENNEY, *Pittsburgh, Pa.:*

I figure you have about 13,000 barrels room for Somerset oil at Hamlin. If this is correct will it be all right to use part of it for our Wayne county production? We will shut down the local stations north of Manchester for a few days and allow them to fill up some of the room in wooden tankage at the stations.

JOHN BAHAN.

[Telegram.]

PITTSBURGH, PA., *August 18, 1914—2.50 p. m.*

To JOHN BAHAN, *Somerset, Ky.:*

We have 12,000 barrels room in our Somerset tanks at Hamlin. You can utilize this room in any manner to your advantage by pumping from either point. There is still no outlet to the east and no advice of any prospects.

J. J. KENNEY.

[Telegram.]

WASHINGTON, PA., *August 21, 1914—11.20 a. m.*

To JOHN BAHAN, *Somerset, Ky.:*

Tools reached Salt Lick yesterday. I am starting men from several places to Ragland to-day. You may send man from Somerset on Monday.

D. L. JOLLY.

[Letter.]

AUGUST 24, 1914.

Mr. D. L. THOMAS,
Agent, Cumberland Pipe Line Co., Oil City, Pa.

DEAR SIR: My superintendent informs me that it is rumored that you intend to shortly shut down, for an indefinite period, your pipe line in the Denney district of the Wayne county, Ky., oil fields.

As I have oil interests in this district representing over $100,000, I naturally feel very much interested in whatever action you may take, therefore shall be pleased to receive from you any information which you may have for the benefit of your patrons.

Am pleased to note in your letter of August 4 that you have added my account to your monthly statement list, and that I should receive a statement of same on or about the sixth of each month, all of which is most acceptable to me.

Yours, very truly,

FRANK P. RUST.

[Letter.]

SOMERSET, KY., *August 28, 1914.*

Mr. FRANK P. RUST, *Detroit, Mich.*

DEAR SIR: Your letter of August 24 to Mr. D. L. Thomas, agent, has been forwarded to me, and in reply will say it is impossible for us to tell, at the present time, how long the Cumberland Pipe Line Company will be able to take oil from the producers. As you know, we are now taking only 50 per cent of the average production. There is no outlet for the oil. All we can do is fill up what available room we have. I understand the refineries, who have handled this grade of oil, have refused to receive any more for the present.

We handle from 25,000 to 30,000 barrels per month from Wayne county, when we take all the oil produced. We now have less than 12,000 barrels room. It is readily seen that we will have to soon reduce the receipts to 25 per cent, and if no outlet for the oil soon will have to stop receiving oil from producers. However, we are moving a 35,000-barrel tank from Ragland, Bath county, to Somerset, which when rebuilt at Somerset will give us some relief. This tank will not be ready for oil for three or four weeks.

You, no doubt, understand the Cumberland Pipe Line Company is engaged only in the transportation of crude oil and can receive only when there is an outlet for it. Inclosed you will find a copy of letter addressed to our gaugers, which will familiarize you with their duties at present. I believe the Eureka Pipe Line Company is taking only 25 per cent of the West Virginia production.

Yours, truly,

JOHN BAHAN, *Vice President*.

[Telegram.]

OIL CITY, PA., *August 29, 1914*.

To JOHN BAHAN, *Somerset, Ky.:*

I figure it will take until October 10 or 15 to complete resetting tank No. 15 at Somerset, depending on the number of tank builders we can pick up. Expect to have to do a great deal of work with green men, as the experienced help is very scarce. We started cutting down last Monday and will rush it to completion as fast as possible.

D. L. JOLLY.

[Telegram.]

SOMERSET, KY., *August 31, 1914*.

To foreman and all gaugers (except district 12):

Beginning to-morrow, September 1, 1914, run only 25 per cent in place of 50 per cent of the oil producers' average production. This is necessary account of no outlet for the oil and our available room in station tanks and stock tanks nearly filled.

JOHN BAHAN.

[Telegram.]

SOMERSET, KY., *September 7, 1914*.

To all gaugers and A. B. M. and Jos. A. G. (except district 12):

Beginning to-morrow, September 8, 1914, you will increase the amount of production to be taken from producers from 25 per cent to 33⅓ per cent, or one-third. You may also add to this amounts due on 50 and 25 per cent in case you did not run the full amount.

JOHN BAHAN.

[Telegram.]

SOMERSET, KY., *September 21, 1914*.

To JOS. A. GEIGER, A. B. MOORE, and all gaugers except district 12:

Instruct your gaugers beginning Thursday, September 24, to run two-thirds of normal production from producers, or twice as much as they are running at present. This has been brought about by a batch of our oil being pumped north from Hamlin, W. Va.

JOHN BAHAN.

[Telegram.]

PITTSBURGH, PA., *September 21, 1914.*

To JOHN BAHAN, *Somerset, Ky.:*

We received relief on Somerset oil at Morgantown Saturday, and Hamlin started pumping that oil at 7 a. m. to-day. We will make 30,000 barrels room which you can utilize, commencing at once.

J. J. KENNEY.

Account repairing line, did not start pumping until September 27.

J. B.

[Telegram.]

SOMERSET, KY., *September 26, 1914.*

To J. A. GEIGER, A. B. MOORE, and all gaugers:

Beginning Thursday, October 1, run all the production, in place of two-thirds. We hope to continue running all the oil after that date.

JOHN BAHAN.

[Telegram.]

JACK LICK BRANCH, *September 26, 1914.*

To JOHN BAHAN, *Somerset, Ky.:*

Line flanged up to-day noon. Will start Manchester to pumping to-morrow a. m.

R. P. LEE.

[Telegram.]

PITTSBURGH, PA., *September 26, 1914.*

To JOHN BAHAN, *Somerset, Ky.:*

We will have about 60,000 barrels additional room for you after you fill up the present 30,000 barrels room, or 90,000 barrels altogether in sight.

J. J. KENNEY.

[Telegram.]

PITTSBURGH, PA.,*October 16, 1914.*

To JOHN BAHAN, *Somerset, Ky..*

We only have 2,000 barrels room for Somerset oil at Hamlin. Will you please shut Somerset station down at once for a few days until we can clean up on Eureka stock; then we will be able to start Somerset again. You can let your local stations fill up our 2,000 barrels if necessary. Advise.

J. J. KENNEY.

[Telegram.]

PITTSBURGH, PA., *October 22, 1914.*

To JOHN BAHAN, *Somerset, Ky.:*

You can start all your stations pumping to Hamlin at 7 a. m. to-morrow, Friday, full head. We are now making 35,000 barrels room at Hamlin.

J. J. KENNEY.

[Letter.]

OIL CITY, PA., *January 26, 1915.*

MR. FORREST M. TOWL,
President, The Eureka Pipe Line Company,
26 Broadway, New York, N. Y.

DEAR SIR: Will you kindly advise me, at your early convenience, if at any time the Eureka Pipe Line Company refused to take into its lines all or any part of the crude petroleum produced in the fields to which its lines are connected? And if so, will you please give me the reasons for such refusal and what effect, if any, in your opinion, such refusal had upon the oil production, especially upon property already developed, in the territory covered by the operations of that company.

Yours, very truly,

Chas. E. Mosser, *Examiner.*

[Letter.]

New York, *February 8, 1915.*

Mr. Charles E. Mosser, *Oil City, Pa.*

Dear Sir: I have been very busy getting several matters in shape for the last few days and have neglected forwarding you data in reference to the matter referred to in your letter of January 26.

I herewith inclose letter from Mr. H. L. Scrafford, several telegrams and letter from Mr. J. J. Kenney in reference to the matter. When you are through with this correspondence, please return it to me.

Yours, very truly,

Forrest M. Towl,
President, The Eureka Pipe Line Company.

[Letter.]

Pittsburgh, Pa., *February 1, 1915.*

Mr. Forrest M. Towl, *President.*

Dear Sir: Your letter of January 29, with copy of letter of Mr. Charles E. Mosser of January 26 received, asking if "at any time the Eureka Pipe Line refused to take into its lines all or any part of the crude petroleum produced in the field to which its lines are connected, etc."

I have been connected with the Eureka Pipe Line Company since it was organized in December, 1890, and from that date up to the present time at no time has the Eureka Pipe Line refused to accept or run good merchantable oil from the producers' tanks into our lines, except a few times when we have caught the producer stealing oil from us, and then we usually disconnected their tanks until the matter was settled satisfactorily to both parties; and after the present European war was declared I issued the inclosed message, dated July 31, 1914, to only relieve the producers' tanks, and after figuring about how much oil the refineries would probably take I issued the order to run 25 per cent (see copy of message dated August 4) and we run 25 per cent until August 28, when I issued orders through Mr. J. J. Kenney over long-distance phone from Mount Clemens to increase the runs to 33⅓ per cent (see message of that date). On September 15, 1914, we increased to 50 per cent (see copy of message of that date). On September 18 I sent a message to commence September 21 and run two-thirds of the production (see copy of message of that date). On September 22 I sent message to commence running all the oil September 26 (see copy of message of that date).

In addition to the above, there have been a few times that the Eureka Pipe Line was not able to take care of a wildcat well at some distance from our lines when it was first completed, or of a large pool of oil like the Blue Creek field of 1912, where the pool was larger than the producers expected, and we were compelled to increase our line capacity as far as Downs station to finally take care of that field, and the roads in terrible condition to haul material and pipe, but with everything against us there was practically no oil lost in that field.

In regard to what effect "not running all the oil from producers would have on their wells." If wells were producing considerable water, it would be generally figured that to shut in those wells and not run them at all would injure them, but in reply to message from A. D. McVey of August 8, I speak of that feature of the business in my reply of that same date. (See copy of message.)

In talking with producers at that time I advised them when they had water wells to lower the working barrels in their wells to allow them to pump off the water, with the 25 per cent, and when they could not pump off all the water that way to build small tankage and use it at those wells, and they could use this small tankage at new or other wells when the trouble was over.

I also inclose herewith a letter from Mr. J. J. Kenney in relation to the amount of oil we shipped on tenders of shipment during the month of August; also the amount of runs for that month, showing that we received about 47,000 barrels more than we received tenders of shipment for during the month of August.

Yours, truly,

H. L. Scrafford.

[Letter.]

Pittsburgh, Pa., *January 30, 1915.*

Mr. H. L. Scrafford,
Vice President, The Eureka Pipe Line Company, City.

Dear Sir: Referring to the attached correspondence in regard to the inability of the Eureka Pipe Line Company taking care of all the Pennsylvania grade crude oil production in the fields to which its lines are connected.

I wish to state that during the month of August, 1914, which was the month immediately following the commencement of the European war, we were unable to secure but three tenders of shipment for this oil in the Eureka Pipe Line Company, amounting altogether to 185,000 barrels.

As the tankage of the Eureka Pipe Line Company was about full to capacity at the beginning of August, it was impossible to handle the crude oil produced in West Virginia connected to our lines to any extent above the amount we received tenders of shipment for on the Eureka Pipe Line Company tariffs.

The following are the dates and amounts of the three tenders of shipment mentioned above:

	Barrels.
August 1. E. P. L. Co. Tariff No. 55, shipping order No. 716, Pennsylvania grade crude oil consigned to Vacuum Oil Co., Olean, N. Y.	25,000
August 17. E. P. L. Co. Tariff No. 66, shipping order No. 717, Pennsylvania grade crude oil consigned to the Standard Oil Company, Bayonne and Bay Way, N. J.	80,000
August 27. E. P. L. Co. Tariff No. 66, shipping order No. 718, Pennsylvania grade crude oil consigned to the Standard Oil Company, Bayonne and Bay Way, N. J.	80,000
Total	185,000

The runs from field for month of August, 1914, were 232,149.85 barrels, which shows that we received from the producing wells about 47,000 barrels more than we received tenders of shipment for during that month.

Yours, truly,

J. J. Kenney.

[Letter.]

Pittsburgh, Pa., *February 1, 1915.*

Mr. Forrest M. Towl, *President.*

Dear Sir: I also inclose with the other messages a message received from A. D. McVey on July 20 and my answer of same date in relation to our connecting to the wells that we had formerly been connected and to which the High Grade Oil Company had connected and was running at that time. You might inclose these messages in your letter to Mr. Mosser if you wish, showing that we did not contemplate having to shut off taking the producers' oil as late as July 20, when I told them to connect to wells that had been connected to the High Grade Oil Company.

Yours, very truly,

H. L. Scrafford.

[Telegram.]

St. Marys, W. Va., *July 20, 1914.*

H. L. Scrafford, *Pittsburgh, Pa.:*

The Pleasants County Bank of St. Marys has refused to advance any more money to the High Grade Oil Company to buy any more oil. They are in a bad way. Some of the producers that are connected to their lines are after us to connect their wells. Will we go ahead and connect the wells?

A. D. McVey.

[Telegram.]

Pittsburgh, Pa., *July 20, 1914.*

A. D. McVey, *Parkersburg:*

Message received. Please tell the producers that are connected to the High Grade Oil Company that we will go ahead and connect to them and run their oil providing they give us the oil for one year. We do not want any contract, only their word to that effect. You can explain to them the situation; that it is pretty bad to take care of the oil and we want that assurance; that as soon as it lets up they will run their oil that length of time if we take care of them.

H. L. Scrafford.

[Telegram.]

Pittsburgh, Pa., *July 31, 1914.*

W. J. Alexander, *Parkersburg:*

On account of the war, and the buyers of the oil only buying oil in small lots, please wire all gaugers to only relieve the producers' tanks when full until further notice.

H. L. Scrafford.

[Telegram.]

Pittsburgh, Pa., *August 4, 1914.*

W. J. Alexander, *Parkersburg:*

Please instruct the gaugers to run 25 per cent of each producers' production in their district until further notice and instruct them to be careful to give each producer his proportion.

H. L. Scrafford.

[Telegram.]

Parkersburg, W. Va., *August 8, 1914.*

H. L. Scrafford, *Pittsburgh, Pa.:*

There is quite a difference in the opinion of producers regarding running of the 25 per cent of their production. They claim, for instance, they have 100 barrels per day; we are to run one-quarter of same; and then, if they only produce 25 per cent of what their production is and leave the balance in the wells, we are to run the 25 per cent. Please advise.

A. D. McVey.

[Telegram.]

PITTSBURGH, PA., *August 8, 1914.*

A. D. MCVEY, *Parkersburg:*

Your message received. The 25 per cent of the producers' production meant 25 per cent of their production when the rule went into effect. If the producer only produces 25 per cent of what production he had when that order was issued our gaugers should run that 25 per cent, as they are storing the balance of the oil in the ground where they can, and it is our intention to take, if we possibly can, the 25 per cent of the production as it was the day we issued the order, which was close to 27,000 barrels per day on an average for the last month; that would be, we are to run 25 per cent of the 27,000 barrels on an average per day until further notice. Where producers have water wells, etc., they will probably have to set up more tankage to save spoiling their wells and pump them off. If a case should arise where they had a farm that produced 20 barrels of oil and one or two wells on that farm they could shut in altogether the balance if they could make the arrangement satisfactory to the royalty owner—that is, to take the 25 per cent of the total production of that farm from the water wells—I can see no objection to our gaugers doing so. In other words, the object is to take 25 per cent from *each* and *every* producer of his production when the rule went into effect—that, of course, would include royalty owners as well as property owners.

H. L. SCRAFFORD.

[Telegram.]

MANNINGTON, W. VA., *August 8, 1914.*

H. L. SCRAFFORD, *Pittsburgh:*

We are just in receipt of a copy of your message to A. D. McVey relative to running 25 per cent of the producers' production as it was at time the original order was given us. What shall we do in regard to new wells?

J. COCHRANE.

[Telegram.]

PITTSBURGH, PA., *August 8, 1914.*

W. J. ALEXANDER, *Parkersburg.*
A. D. MCVEY, *Parkersburg.*
JAS. COCHRANE, *Mannington.*

Mr. Cochrane asks the question after receiving a copy of my message to A. D. McVey, "What shall we do in regard to new wells?"

In case any new wells come in, the gauger should see the producer or owner or man in charge of same and try and fix up with him what the decline in such new well would be and run 25 per cent of the oil, including the natural decrease in that well from day to day. If the producer is dissatisfied with our figures for the 25 per cent, they can demonstrate to us what this well is doing by pumping the head off and then producing for 24 hours, and we will take 25 per cent of that with the natural decrease until the well is settled. The idea is that we want to be fair and just to all the producers, including their new wells, but they all know that there is quite a big decline in new wells after the first few days, and if possible we want to take the 25 per cent from each producer; but of course we have got to be careful and not discriminate and take more than the 25 per cent on the average from any producer or the others will make complaints to us that we are discriminating.

H. L. SCRAFFORD.

[Telegram.]

PITTSBURGH, PA., *August 28, 1914.*

W. J. ALEXANDER, *Parkersburg:*

Commencing to-day, please arrange to run one-third of the production from the field instead of 25 per cent. This of course does not mean any of the accumulated stock on hand, but beginning with the normal production to-day, or about 9,000 barrels per day, to be distributed proportionately among the various producers as was the 25 per cent.

H. L. SCRAFFORD.

NOTE.—The above telegram was sent out over my signature by J. J. Kenney after receiving instructions from me by long-distance phone from Mt. Clemens, Mich.

H. L. SCRAFFORD.

[Telegram.]

MANNINGTON, W. VA., *August 31, 1914.*

W. J. ALEXANDER, *Parkersburg:*

The following is asked by a gauger: "Where a well and farm are abandoned by a producer, can we run a whole tank or what is in the tank? They claim they have got to get their stuff off the farm." Please advise.

J. COCHRANE.

[Telegram.]

PARKERSBURG, W. VA., *August 31, 1914.*

H. L. SCRAFFORD, *Pittsburgh, Pa.:*

Please note attached message from J. Cockrane: "We have had only two cases brought to our notice personally, one with about 20 barrels where a lease and well to be abandoned, and with the removal of the boiler it would mean running the oil on the ground or into our lines, and we agreed to make the run. The other case, with a full tank, Mr. McVey held the producer off. They are liable to work us on such demands. In case where a producer has a tank full or part full and no other production it would appear reasonable to help him out, but if he has other leases we might run out the oil at a well to be abandoned and deduct that amount from another lease. We anticipate a lot of such cases and we would like to have you give us a ruling on this matter."

W. J. ALEXANDER.

[Telegram.]

PITTSBURGH, PA., *September 1, 1914.*

W. J. ALEXANDER, *Parkersburg:*

In your message of August 31, in relation to wells being abandoned and producing no more oil and the producer wanting all their oil run. In such cases you can run all the oil, because if they move the boiler and stuff off from the lease they will have to, as you say, run the oil on the ground, and that is not discrimination, for if they wish we can hold that oil until such time as it would amount to one-third, if necessary; but t is not in such cases—the wells and tanks are abandoned and that ends the lease.

H. L. SCRAFFORD.

[Telegram.]

PITTSBURGH, PA., *September 15, 1914.*

W. J. ALEXANDER, *Parkersburg:*

Please notify all gaugers to commence running 50 per cent of the oil at once. You can say to the different producers that we think if the shipments of oil continue as they have been lately that in another week we will be able to take two-thirds of the oil and take it as long as we can. If the shipments continue to increase we will increase with them, but if they should decrease we might have to cut down from the two-thirds, but will not do so unless it is actually necessary.

H. L. SCRAFFORD.

[Telegram.]

PITTSBURGH, PA., *September 18, 1914.*

W. J. ALEXANDER, *Parkersburg:*

Please notify the gaugers commencing Monday the 21st to run two-thirds of their production.

H. L. SCRAFFORD.

[Telegram.]

PITTSBURGH, PA., *September 22, 1914.*

W. J. ALEXANDER, *Parkersburg:*

Please notify all the gaugers to commence running all the oil September 26. Notify them that we will continue to run all the oil in the future as long as we possibly can. It may become necessary some time in the future to reduce again, but we will not do so until it is absolutely necessary.

H. L. SCRAFFORD.

[Telegram.]

PITTSBURGH, PA., *September 24, 1914.*

W. J. ALEXANDER, *Parkersburg:*

As Mr. Seep has commenced to buy all of the oil, you can instruct the gaugers that they need not be particular to figure to run just the two-thirds of the production for to-day and to-morrow, as we will be taking all of the oil on Saturday.

H. L. SCRAFFORD.

[Letter.]

ARLINGTON HOTEL,
Oil City, Pa., April 12, 1915.

MR. W. J. HIGGINS,
Treasurer Producers & Refiners Oil Company, Pittsburgh, Pa.

DEAR SIR: Will you please advise me, at your convenience, if at any time during 1914 your company refused to take into its owned or operated lines all or any part of the crude petroleum produced in the fields to which its lines are connected, and if so, will you please give the reasons for such refusal, and what effect, if any, in your opinion, such refusal had upon the oil production, especially upon property already developed, in the territory covered by the operations of your company.

Yours, very truly,

CHAS. E. MOSSER, *Examiner.*

[Letter.]

PITTSBURGH, PA., *April 13, 1915.*

CHAS. E. MOSSER, Esq., *Arlington Hotel, Oil City, Pa.*

DEAR SIR: In answer to your letter of April 12, would state this company during the months of August and September, 1914, did refuse to take into its operated lines a part of the crude petroleum produced in the field to which its lines were connected. During the month of August it only took 61.3 per cent and in the month of September 81.9 per cent of the previous normal production. This was caused by the European war which immediately caused the markets between European countries and the United States to be cut off, leaving the refiners without a market for their refined oil, which they had previously depended upon and who in consequence purchased very little crude oil from this company.

On July 31, 1914, the company had in stock 610,038.05 barrels crude oil and 732,576.71 barrels safety capacity, which left about 120,000 barrels available room. The company having no knowledge as to how long the conditions brought about by the European war would continue, it only gathered from its customers that amount of oil for which it had sale, reserving its surplus capacity for the purpose of taking care of the producers connected to its line as best it could and especially in cases where producers' storage capacity was filled to its utmost.

We do not believe the partial shutdown had a very bad effect upon the production, if any,

Yours, very truly,

THE PRODUCERS AND REFINERS OIL COMPANY.
W. J. HIGGINS, *Treasurer*.

[Letter.]

ARLINGTON HOTEL,
Oil City, Pa., April 12, 1915.

Mr. R. D. BENSON,
President the Tidewater Pipe Company, Limited,
No. 11 Broadway, New York, N. Y.

DEAR SIR: Will you please advise me, at your convenience, if at any time during 1914 your company refused to take into its owned or operated lines all or any part of the crude petroleum produced in the fields to which its lines are connected, and if so, will you please give the reasons for such refusal, and what effect, if any, in your opinion, such refusal had upon the oil production, especially upon property already developed, in the territory covered by the operations of your company.

Yours, very truly,

CHAS. E. MOSSER, *Examiner*.

[Letter.]

11 BROADWAY, NEW YORK, N. Y., *April 14, 1915.*

Mr. CHAS. E. MOSSER,
Examiner, Interstate Commerce Commission, Arlington Hotel, Oil City, Pa.

DEAR SIR: Replying to your inquiry of the 12th instant, I will state that the following is a copy of my order to the general superintendent of this company and his order to the superintendent of transportation:

AUGUST 4, 1914.

A. W. GOLDEN,
Gen. Supt. the Tidewater Pipe Co., Ltd.:

The war in Europe has so demoralized the markets of the Tidewater Oil Company that, for the time being, it is unable to dispose of the output of its refinery. This has forced that company, which is our only outlet for crude, to curtail its purchases of crude oil. Until further notice you are ordered not to run oil except from properties where the tankage is in danger of overflowing. Please communicate this order to all producers connected with our lines, and advise them that we will do the best we can to take care of their production, but that you are instructed to warn them that a further curtailment of runs may become necessary and that they should be prepared for an order to this effect.

R. D. BENSON, *President.*

W. E. SANDBORN,
Supt. of Transportation, the Tidewater Pipe Co., Ltd.:

I hand you herewith order received this morning from the president of the Tidewater Pipe Company, Limited. Please see that all field foremen and gaugers have a copy of this order, and that they comply with it. Also ask producers to cooperate with us to enable us to meet the situation.

A. W. GOLDEN, *General Superintendent.*

In explanation of the above orders I will say that when the present European war was declared the deliveries of oil from the Tidewater Oil Company's refinery at Bayonne immediately ceased. As this is the sole outlet of the pipe company, it became evident that it might be impossible to continue taking oil from the producers freely, as had heretofore been our custom. This situation accounts for the orders above quoted.

As a matter of fact, however, the runs of the Tidewater Pipe Company from the producers' wells were only slightly diminished. I give you, on the inclosed sheet, the total runs from May to November, inclusive, from which you will see that the runs, while less in August, were largely made up in the following months. You will note that the increase in production in September and October in the Illinois and Indiana fields was not as great as that in the New York and Pennsylvania fields, and in explanation I will say that during these months there was a considerable natural falling off in production to which we were attached.

So far as we know, no oil was offered us for purchase which we did not take, and we believe that if you will consult the producers attached to our line you will find that we handled the difficult situation created by the outbreak of the war more satisfactorily than did any other of the pipe-line companies.

To prevent any misunderstanding, I desire to add that while this company has posted tariff sheets in accordance with the direction of your Commission, yet during the whole of 1914 no oil was tendered to it for transportation, and the above communication refers only to oils which are sold to us by the producer in the tank at the mouth of the well and not to any oil tendered for transportation.

Yours, truly,

R. D. Benson, *President.*

TIDEWATER PIPE COMPANY LINE.

Runs 1914.

Field.	May.	June.	July.	August.	September.	October.	November.
Bradford	82,763.44	85,617.91	85,544.57	71,456.02	87,613.77	85,047.22	75,483.48
Allegheny	32,610.40	31,001.31	32,661.11	26,609.00	30,215.52	30,997.48	26,909.83
Illinois	116,984.78	112,420.74	95,816.39	80,785.99	92,746.52	86,591.13	81,664.76
Indiana	23,635.16	22,633.73	15,671.14	11,472.04	11,785.58	10,881.44	9,571.27
Total[1]	256,205.29	251,673.69	229,857.69	190,323.05	222,361.39	213,739.37	193,629.34

[1] The totals of May, July, and October also include runs of the Hebron pool, not listed, amounting to 598.09.

APPENDIX IV.

[Letter.]

THE BALTIMORE,
Kansas City, Mo., May 19, 1915.

Mr. GEO. S. DAVISON,
President Gulf Line Company of Oklahoma,
Frick Building Annex, Pittsburgh, Pa.

DEAR SIR: Will you please advise me, at your early convenience, if at any time during the year 1914 your company stopped purchasing all or any part of the crude petroleum produced in the territory to which its lines are connected, and if so, will you please give the reasons for refusal to purchase such crude petroleum, and what effect, in your opinion, such refusal had upon the oil industry, especially upon property already developed in the territory covered by the operations of your company.

Yours, very truly,

CHAS. E. MOSSER, *Examiner.*

[Letter.]

PITTSBURGH, PA., *May 22, 1915.*

Mr. CHARLES E. MOSSER,
Examiner, Interstate Commerce Commission, the Baltimore, Kansas City, Mo.

DEAR SIR: Answering your letter to this company dated May 19, 1915, I would state that during the greater part of the year 1914 the crude oil produced in the Oklahoma fields was greatly in excess of the necessities and facilities of all the purchasers combined. This condition forced some of the larger oil producers and purchasers to build immense amounts of tankage and to store oil therein. In this situation many producers who did not build tankage, and to some extent the producers who did build tankage, cramped in their wells.

Meanwhile this company kept all of its pipe-line facilities working to their full capacity; and in addition it provided a large amount of storage and made additional purchases of oil to the extent that good business judgment warranted. This excess from the first to the last day of the year 1914 was substantially 475,000 barrels.

We do not regard the failure of this company to handle more oil than it did as constituting a "refusal to purchase" in the sense used in your letter.

Respectfully,

GEO. S. DAVISON.

[Letter.]

ROOM 1005 BESSEMER BUILDING,
Pittsburgh, Pa., August 23, 1915.

Mr. GEO. S. DAVISON,
President Gulf Pipe Line Company of Oklahoma, Pittsburgh, Pa.

DEAR SIR: Will you kindly see your letter of May 22, and in connection therewith give me, at your early convenience, such figures as will in your opinion demonstrate the conditions with which your company were confronted in the running and purchasing of crude petroleum from the Cushing field in Oklahoma during the year 1914?

Perhaps your lines leading out of the Cushing pool were of insufficient capacity to handle the oil as fast as it was produced by wells to which your lines are connected in that pool, in which event I would like you to give me such figures as will show the relation between the daily capacity of your lines and the daily production of the pool upon representative dates during the year 1914, or any other data you may consider pertinent to this inquiry.

Yours, very truly,

CHAS. E. MOSSER, *Examiner.*

[Letter.]

PITTSBURGH, PA., *August 24, 1915.*

INTERSTATE COMMERCE COMMISSION,
DIVISION OF CARRIERS' ACCOUNTS,
Washington, D. C.

Attention Mr. C. E. Mosser.

GENTLEMEN: I beg to acknowledge receipt of your letter of August 23. I have reviewed my letter to you of May 22, and unless I can get a clearer idea than I now have of the purpose of your inquiry I can not see that I can add anything to what I have already given you.

While I think you already have the main facts that govern our operations in the Oklahoma fields, I am giving them to you briefly so that you may be more definite in your requests for information from me concerning the matter under discussion.

The Gulf Pipe Line Company of Oklahoma is a purchaser and a transporter of crude oil with lines reaching, generally, all the pools in Oklahoma, including Cushing. All the oil that it takes into its system eventually finds its way to the Gulf Pipe Line Company (of Texas) at Powderly Station, Tex., substantially on the boundary line between Texas and Oklahoma. Such crude oil as the Gulf Pipe Line Company of Oklahoma sells to the Gulf Pipe Line Company is in turn sold to the Gulf Refining Company at the southern end of the latter's line at Port Arthur, Tex.

During the year 1914 there was no crude oil offered to the Gulf Pipe Line Company of Oklahoma for transportation; therefore all the oil that it ran in its lines was on purchases made by itself. Out of these purchases it sold to the Gulf Pipe Line Company, which in its turn sold to the Gulf Refining Company, as stated above. During that period the main lines of these two companies delivered to the Gulf Refining Company substantially the full capacity of their main pipe lines. I say *substantially*, because the amount pumped south by these two companies would not agree with the quantities actually received by the Gulf Refining Company by such differences as were occasioned by the use of oil for fuel at stations along the line, losses of oil sustained by the lines, and the changes in the stocks of the Gulf Refining Company at beginning and end of the year 1914.

I said in my letter of May 22 that the Gulf Pipe Line Company of Oklahoma ran into storage in Oklahoma in the year 1914 substantially 475,000 barrels; in other words, this company furnished tankage for oil and bought in excess of its ability to dispose of same to the amount of 475,000 barrels. It is a notorious fact that in the greater part of 1914 the production of oil in Oklahoma was greatly in excess of the requirements of the refineries depending upon this field for their oil, this condition being largely brought about by the excessive production in the Cushing field. The Gulf Pipe Line Company of Oklahoma's lines in 1914 reached the Cushing field as it did many other fields in Oklahoma. Given the actual production of Oklahoma for 1914, I can not see that it is material what the conditions were that confronted this company at Cushing. If this company had had no lines to Cushing, the result of its operations and purchases of oil would have been much the same as with a line to Cushing. It would undoubtedly have purchased as much oil, but it would have given the fields other than Cushing greater relief, and to the extent of its purchases at Cushing, leaving the surplus of the Cushing field to such other agencies as were connected with that field.

As to the figures that we might give you, we have no authentic figures except those that are records of this company relating to its own operations. I understand that Mr. Gillespie has been thoroughly over our books and has all the figures that are there, and I can not see what I could add to them. After considering what I have said in this letter please indicate in what way I can be of service to you.

Yours truly,

GEO. S. DAVISON.

[Letter.]

PITTSBURGH, PA., *September 1, 1915.*

INTERSTATE COMMERCE COMMISSION,
DIVISION OF CARRIERS' ACCOUNTS,
Washington, D. C.

Attention Mr. C. E. Mosser.

GENTLEMEN: Mr. Gillespie called on me to discuss my letter to you dated August 24. The result of this discussion was that he thought I should give you the average daily amount of Oklahoma crude oil which the Gulf Refining Company bought from the Gulf Pipe Line Company during the year 1914, together with the capacity of the Gulf pipe lines leading southward out of Oklahoma.

In compliance with his request I therefore state to you that this company purchased from the Gulf Pipe Line Company during the year 1914 the gross sum of 7,798,429 barrels for use at its refineries at Fort Worth and Port Arthur, Tex.

This, you will notice, is slightly less than 21,400 barrels average daily.

The average capacity of the main pipe lines of the Gulf Pipe Line Company of Oklahoma during 1914 was about 22,000 barrels. I say "average" for the reason that the capacity of these lines is somewhat less in cold than in warm weather, so that the capacity differs from time to time.

About 400 barrels per day of this difference could be accounted for as fuel used at our pumping stations en route.

Yours truly,

GEO. S. DAVISON.

[Letter.]

THE BALTIMORE,
Kansas City, Mo., May 6, 1915.

Mr. W. C. PROCTOR,
Treasurer Magnolia Pipe Line Company of Oklahoma,
Busch Building, Dallas, Tex.

DEAR SIR: Will you please advise me, at your early convenience, if at any time during the year 1914 your company stopped purchasing all or any part of the crude petroleum produced in the territory to which its lines are connected, and if so, will you please give the reasons for refusal to purchase such crude petroleum, and what effect, in your opinion, such refusal had upon the oil industry, especially upon property already developed in the territory covered by the operations of your company.

Yours, very truly,

CHAS. E. MOSSER, *Examiner.*

[Letter.]

DALLAS, TEX., *May 7, 1915.*

Mr. CHAS. E. MOSSER,
Examiner, Interstate Commerce Commission, The Baltimore, Kansas City, Mo.

DEAR SIR: In reply to your letter of May 6, we beg to advise that up until March 20, 1914, we purchased practically all the oil from each producer, but after that time the production of the field was greater than the capacity of our pipe lines and the demands of the market, and we could only purchase a portion of the production.

At no time during that period did we refuse to purchase the ratable amount due each producer based on the total amount we were able to handle.

Yours, very truly,

W. C. Proctor, *Treasurer.*

[Telegram.]

Dallas, Tex., *August 29, 1915—9.30 a. m.*

Chas. E. Mosser,
Room 1005, Bessemer Building, Pittsburgh, Pa.:

Wells connected—March twentieth, twenty-three; Sept. twentieth, two forty-two; production—March twentieth, ninety-six twenty-five barrels; Sept. twentieth, sixty-four two seventy-seven barrels; line capacity, eleven thousand barrels. Guffey cancellation due to war conditions making necessary curtailment output of refineries and taking of crude, also their ability to take care of their production while other producers did not have facilities. Letter follows.

W. C. Proctor.

[Letter.]

Dallas, Tex., *August 30, 1915.*

Mr. Chas. E. Mosser,
1005 Bessemer Building, Pittsburgh, Pa.

Dear Sir: Confirming telegram sent you yesterday, which answered your inquiries:

Wells connected:	
March 20, 1914	23
September 20, 1914	242
Production:	Barrels.
March 20, 1914	9,625
September 20, 1914	64,277
Line capacity	11,000

This, I believe, will answer your inquiry for average wells and production.

We should have written sooner, but had some trouble locating some of the old reports. We hope the delay did not cause you serious inconvenience.

Yours, very truly,

W. C. Proctor, *Treasurer.*

[Letter.]

The Baltimore,
Kansas City, Mo., May 19, 1915.

Mr. W C. Proctor,
Treasurer Magnolia Petroleum Company,
Busch Building, Dallas, Tex.

Dear Sir: Will you please advise me, at your early convenience, if at any time during the year 1914 your company stopped purchasing all or any part of the crude petroleum produced in the territory to which its lines are connected, and if so, will you please give the reasons for refusal to purchase such crude petroleum, and what effect, in your opinion, such refusal had upon the oil industry, especially upon property already developed in the territory covered by the operations of your company.

Yours, very truly,

Chas. E. Mosser, *Examiner.*

[Letter.]

DALLAS, TEX., *May 21, 1915.*

Mr. CHAS. E. MOSSER,
Examiner, Interstate Commerce Commission,
care The Baltimore, Kansas City, Mo.

DEAR SIR: We beg to acknowledge receipt of your letter of May 19 and in reply will state that on August 19, 1914, we advised the producers in the Iowa Park district that we wished to avail ourselves of the 10 days' notice provided in the contract, but we found later that this was unnecessary. Copy of our letter to these producers is hereto attached.

On August 7, 1914, we served notice on the J. M. Guffey Petroleum Company covering their leases at Electra, Tex., and canceled their contracts within the 10-day limit provided in the division order contract. On November 13, 1914, we reconnected to the tanks on their leases and handled the oil from that time through the balance of the year.

The J. M. Guffey Petroleum Company are large producers and had facilities for handling their own oil at Electra. Therefore, our action did not have an appreciable effect on the oil industry in that locality.

Yours, very truly,

W. C. PROCTOR, *Treasurer.*

DALLAS, TEX., *August 19, 1914.*

GENTLEMEN: Under paragraph No. 5 of our division order contract, which gives this company, or a producer representing one-half interest, the right to terminate contract by giving 10 days' notice, we advise you that we will cancel division order contract dated ...., covering production at Iowa Park, Tex., at the expiration of 10 days from this date.

We may, however, be able to run your oil after August 29 for a short time if the conditions justify or until other arrangements are completed, but we wish to be in a position to terminate the contract on that date if necessary.

Yours, truly,

MAGNOLIA PETROLEUM COMPANY.
By ——, *Treasurer.*

[Letter.]

DALLAS, TEX., *August 30, 1915.*

Mr. CHAS. E. MOSSER,
1005 Bessemer Building, Pittsburgh, Pa.

DEAR SIR: The cause for cancellation of the J. M. Guffey Petroleum Company contracts at Electra was the war conditions. At that time it seemed apparent that the oil business would be demoralized, and it was necessary to curtail the output of the refineries and decrease taking of crude wherever possible to meet this condition.

The J. M. Guffey Petroleum Company, as stated in our previous letter, had facilities for handling their own oil; that is, they had large tanks in the Electra field and a pipe-line system to their leases. Because of their ability to handle their own production, the notice was served on them rather than on other producers who did not have such facilities, and on whom there would have been a hardship if we had discontinued taking their oil.

Yours, very truly,

W. C. PROCTOR, *Treasurer.*

[Letter.]

THE BALTIMORE,
Kansas City, Mo., May 29, 1915.

Mr. T. J. DONOGHUE,
Vice President, The Texas Company, Texas Building, Houston, Tex.

DEAR SIR: Will you please advise me, at your early convenience, if at any time during the year 1914 your company stopped purchasing all or any part of the crude petroleum produced in the territory to which its lines are connected, and if so, will you please give the reasons for refusal to purchase such crude petroleum, and what effect, in your opinion, such refusal had upon the oil industry, especially upon property already developed in the territory covered by the operations of your company.

Yours, very truly,

CHAS. E. MOSSER, *Examiner.*

[Letter.]

HOUSTON, TEX., *June 11, 1915.*

Mr. CHARLES E. MOSSER,
Examiner, Interstate Commerce Commission, Kansas City, Mo.

DEAR SIR: Your three letters of May 29 received.

In reply to your inquiries will say that this company has not at any time declined to accept crude petroleum for transportation, but at times during the years 1914 and 1915 we were unable to run or purchase all of the crude petroleum offered in Oklahoma, the reason being that the production in that state, and particularly in the Cushing pool, was greatly in excess of facilities for handling, in result whereof it became necessary to prorate purchases in accordance with the Oklahoma statute and under orders of the corporation commission.

* * * * * * *

Yours, very truly,

T. J. DONOGHUE.

[Letter.]

ROOM 1005 BESSEMER BUILDING,
Pittsburgh, Pa., August 23, 1915.

Mr. T. J. DONOGHUE,
Vice President, The Texas Company, Houston, Tex.

DEAR SIR: Please refer to your letter of June 11 relating to the inability of your company to run or purchase all the crude petroleum offered in Oklahoma during *the year 1914* due to the production of that state, particularly the Cushing field, being in excess of the pipe-line facilities for handling. In this connection will you please advise me just what facilities you refer to, whether pipe lines of your company leading out of the Cushing field or whether tankage facilities in that field or elsewhere on your system?

I will very much appreciate the consideration if you will give in your reply such figures as in your opinion will demonstrate the conditions with which you were confronted during 1914 and which led to your inability to run and purchase the full production.

Yours, very truly,

CHAS. E. MOSSER, *Examiner.*

[Letter.]

HOUSTON, TEX., *August 30, 1915.*

Mr. CHAS. E. MOSSER,
Room No. 1005, Bessemer Building, Pittsburgh, Pa.

DEAR SIR: Replying to your letter of August 23 referring to my letter of June 11, and in which you ask us to advise you just what facilities we refer to, whether pipe lines of our company leading out of the Cushing field, or whether tankage facilities in that field or elsewhere in our system:

I beg to state that we have one 6-inch pipe line leading out of the Cushing field, which was operated to its full capacity during such time as oil was available. Our storage tanks were located at various points along our trunk line, and hence our ability to handle Cushing oil was limited to the capacity of our pipe-line connection in the Cushing field.

Yours, very truly,

T. J. DONOGHUE, *Vice President.*

O

64TH CONGRESS, } SENATE. { DOCUMENT
1st Session. } { No. 14.

PROPOSED ACQUISITION OF CHESAPEAKE & DELAWARE CANAL.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING

IN RESPONSE TO A RESOLUTION OF THE SENATE OF OCTOBER 14, 1914 (2D SESS., 63D CONG.), CERTAIN INFORMATION RELATIVE TO THE PROPOSED ACQUISITION OF THE CHESAPEAKE & DELAWARE CANAL, THE PROBABLE COST THEREOF, AND AS TO THE ADVANTAGES OR DISADVANTAGES, COMMERCIAL, NAVAL, AND MILITARY, OF THE ACQUISITION OF SAID CANAL BY THE UNITED STATES.

DECEMBER 10, 1915.—Referred to the Committee on Interstate Commerce and ordered to be printed.

WAR DEPARTMENT,
Washington, March 11, 1915.

The PRESIDENT OF THE SENATE.

SIR: I have the honor to acknowledge the receipt of Senate resolution 465 (Oct. 8, 1914), asking for certain information in regard to the Chesapeake & Delaware Canal. The resolution is as follows:

> *Resolved*, That the Secretary of War is hereby directed to furnish for the use of the Senate such information as he can secure as to the price at which the existing Chesapeake & Delaware Canal and all the property, rights of property, franchises, and appurtenances used or required in connection therewith or appertaining thereto, can be purchased.
>
> *And, further*, That the Secretary of War is directed to secure, prepare, and report to the Senate summaries of reports of Government commissions, officers, and engineers, heretofore made, and such facts, information, and opinions of the boards or officers of the Army and Navy as he may deem proper or pertinent as to the advantage or disadvantages, commercial, naval, and military, of the acquisition of said canal by the United States.

Three separate things are asked for by this resolution, namely:

First. The presentation of information as to the price at which the Chesapeake & Delaware Canal can be purchased in its entirety;

Second. The preparation of summaries of former reports upon the canal, and

Third. The presentation of facts, information, and opinions of such officers of the Army and Navy as I may deem it proper or pertinent to call upon, as to the advantages or disadvantages, commercial, naval, and military, of the acquisition of said canal by the United States.

The duty of obtaining such information as was possible, relative to the price at which the Chesapeake & Delaware Canal can be purchased, and of preparing the summaries of former reports upon the canal, was assigned to the district engineer officers at Baltimore, Md., and Wilmington, Del. These officers report that they have not met with any greater success than previous boards in their endeavor to obtain a fixed price or any quotation whatever, or even a basis of arriving at a price, from the canal company. The only expression which they were able to obtain from the company is a statement that—

> probably the best and only method for fixing a fair value upon the canal and having the conveyance made to the Government will be by condemnation proceedings or through a commission appointed for that purpose.

A letter dated January 2, 1915, from the president of the canal company upon this matter is appended hereto, marked "Appendix A." On pages 7 to 28 of Appendix B, hereto attached, may be found conclusions of former boards in regard to this matter, and attention is invited to these statements as the best evidence available.

Appended hereto and marked "Appendix B" are summaries of the various reports made by Government commissions, officers, and engineers. These show the various negotiations which have taken place with the company, as well as the views of the different boards and commissions which have from time to time considered the question of the transfer of this canal to the United States, or the construction of a waterway along some other route between Chesapeake and Delaware Bays.

The question of the military advantages of the Chesapeake & Delaware Canal was referred to the War College Division of the General Staff, and their report is appended hereto and marked "Appendix C."

Very respectfully,

LINDLEY M. GARRISON,
Secretary of War.

APPENDIX A.

[Chesapeake & Delaware Canal Co. Office, 251 South Fourth Street. Coleman L. Nicholson, president;
Walter Hall, secretary and treasurer.]

PHILADELPHIA, *January 2, 1915.*

Maj. E. N. JOHNSTON,
War Department, United States Engineer's Office,
Wilmington, Del.

DEAR SIR: Upon receipt of your letter of December 23, asking me to give you a price at which the Chesapeake & Delaware Canal Co.'s rights and property would be sold to the United States, a meeting of the directors was called, who carefully considered your request, being most anxious to give the Government the information that they desired, if it was possible to do so. The board, however, could not see how they could answer your question except in the same way they answered the Senate committee last April, when they made a similar request. The board of directors of the Chesapeake & Delaware Canal Co. do not control the stockholders or bondholders of that company, and the question as to what price would be accepted by them for their interest must be one which they alone can answer. The board do not see how they could do anything more than state that they could recommend a price that would pay the par value of the bonds and give a sufficient amount for the stockholders to induce them to consent to the sale. If the Government desires any proposition to be submitted to the stockholders, the board of directors will be glad to call a meeting for the purpose of considering whatever the Government would be willing to submit; but unless they have some proposition to submit they can not see that it would be of any advantage to call the stockholders and bondholders together. The board of directors particularly desire the Government to realize that the refusal to name some definite price comes from no desire on the part of the board not to do all in their power to further a sale of the property, but comes solely from a lack of power to say what the bondholders and stockholders will be willing to accept, as each bondholder may have a different idea as to value and can not be bound by the views of his fellow bondholders. It is respectfully suggested that probably the best and only method for fixing a fair value upon the canal and having the conveyance made to the Government will be by condemnation proceedings or through a commission appointed for that purpose.

Very respectfully,

C. L. NICHOLSON, *President.*

APPENDIX B.

SUMMARIES OF REPORTS OF GOVERNMENT COMMISSIONS, OFFICERS, AND ENGINEERS, HERETOFORE MADE, UPON A CANAL TO CONNECT CHESAPEAKE BAY AND DELAWARE RIVER.

[Prepared by Mr. George W. T. Miller, assistant engineer, under the supervision of a board of engineer officers composed of Col. Lansing H. Beach, Corps of Engineers, United States Army, and Maj. E. N. Johnston, Corps of Engineers, United States Army. Jan. 28, 1915.]

List of reports.

Date of report.	Reported upon by—	Contents.
Mar. 25, 1872	Maj. Wm. P. Craighill, Corps of Engineers, U. S. Army.	Preliminary, general.
Feb. 7, 1879	.....do.....	Report on survey of 3 routes. Depth 26 feet at low water. No recommendations.
Nov. 18, 1879	.....do.....	6 routes estimated for. Favors a canal, but recommends no particular route. Submitted additional estimate for 15 feet depth.
Jan. 8, 1880	.....do.....	Submits estimate for Sassafras route.
Feb. 3, 1882	Capt. Thomas Turtle, Corps of Engineers, U. S. Army.	Reduced selection of routes to a choice between a southern (Choptank) and a northern (either Sassafras or existing canal).
July 6, 1882	.....do.....	Reports on ice conditions.
Dec. 5, 1882	Lieut. Col. Wm. P. Craighill, Corps of Engineers, U. S. Army.	Further report on survey. Recommends appointment of a commission.
Dec. 20, 1882	.....do.....	Repeats recommendation for a special commission.
Mar. 1, 1883	.....do.....	Reports special investigation of Back Creek route (existing canal). Submits estimates for 27 feet depth and notes upon military considerations.
Dec. 8, 1894	Special board appointed by the President: Brig. Gen. Thos. L. Casey, Chief of Engineers; Col. Wm. P. Craighill, Corps of Engineers; Capt. George Dewey, U. S. Navy; Mr. Mendes Cohen; Mr. E. Porter Alexander.	Conclusion of board in favor of Back Creek route, substantially the route of existing canal, as most feasible for national defense and greatest facility to commerce.
Jan. 1, 1907	Commission appointed by the President: Gen. Felix Agnus; Maj. C. A. F. Flagler, Corps of Engineers, U. S. Army; Mr. F. T. Chambers, civil engineer, U. S. Navy.	Commission believes no higher price than $2,514,289.70 should be paid by the Government for existing canal; that the present canal route is better because it offers equal commercial advantages, is cheaper, has fewer bridges, and is a developed property possessing earning capacity; and that the purchase of the present canal is desirable, and the construction of a free ship canal is justified by the demands of commerce and by military and naval considerations.
Oct. 4, 1911	Special board: Col. W. M. Black, Col. Frederic V. Abbot, Lieut. Col. J. C. Sanford, Lieut. Col. Mason M. Patrick, Maj. R. R. Raymond; all Corps of Engineers, U. S. Army.	Limited by the law to 25-foot depth. Board recommends purchase of existing canal for $2,514,290 and deepening to 25 feet.
Dec. 12, 1911	Board of Engineers for Rivers and Harbors: Col. Wm. T. Rossell, Corps of Engineers, senior member.	Recommends purchase of existing canal for $2,514,290, and the preparation of estimate for 12-foot depth, and further study to determine whether a less depth than 25 feet would not adequately meet the requirements of commerce.
Jan. 2, 1912	Brig. Gen. W. H. Bixby, Chief of Engineers.	Deems advisable the immediate purchase of existing canal for $2,514,290 and its progressive change to a tide level canal of 25-foot depth, the deepening to 12 feet tide level to be immediate.
Feb. 14, 1912	Special board: Col. W. M. Black, Col. Frederic V. Abbot, Lieut. Col. J. C. Sanford, Lieut. Col. Mason M. Patrick, Maj. R. R. Raymond, all Corps of Engineers, U. S. Army.	Supplementary report. Views on advisability of adopting lesser depth and comparison of lock and tide level types. Tide level preferable for Chesapeake and Delaware Canal, and deepening to 12 feet tide level the first step.
July 22, 1912	Board of Engineers for Rivers and Harbors: Col. Wm. T. Rossell, Corps of Engineers, senior member.	Supplementary report. Concurs with special board that canal should be deepened to 12 feet sea level, but does not believe further deepening to 25 feet should be undertaken until there has been opportunity to observe commercial changes resulting from freeing the canal and the first enlargement.
Aug. 9, 1913	Brig. Gen. W. H. Bixby, Chief of Engineers.	Concurs in views of Board of Engineers for Rivers and Harbors and states that the added benefits accruing from heavy draft boats will be mainly local and consequently should await the cooperation by local States or those most directly benefited.

As the Senate resolution of October 8, 1914, called for summaries of reports of "Government commissions, officers, and engineers," the reports of others were not included, but the following are noted:

Date of report.	Reported upon by—	Contents.
July 4, 1874	Mr. Benj. H. Latrobe, C. E., consulting engineer of Maryland & Delaware Ship Canal Co.	Relating to the Sassafras route.
Mar. 4, 1878	Mr. W. Cullen Brown, chief engineer of Maryland & Delaware Canal Co.	Do.
Mar. 5, 1883	....	Correspondence with canal companies.
Feb. 5, 1886	House Committee on Railways and Canals.	Forty-ninth Congress, First session; Report No. 723.
Apr. 24, 1904	Representative Davidson and Representative Strong.	Fifty-eighth Congress, second session; Report No. 2735 Military and naval uses as well as commercial.

LEGISLATIVE ENACTMENTS AND SUMMARY OF REPORTS RELATIVE TO CANAL CONNECTING CHESAPEAKE BAY AND THE DELAWARE RIVER.[1]

EARLY LEGISLATION.

Act of Congress approved March 3, 1825:

Chap. 76.—An act authorizing the subscription of stock in the Chesapeake and Delaware Canal Company.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Treasury be, and he is hereby, authorized and directed to subscribe, in the name and for the use of the United States, for one thousand five hundred shares of the capital stock of the Delaware and Chesapeake Canal Company, and to pay for the same, at such times and in such proportions as may be required by the said company, out of the dividends which may grow due to the United States upon their bank stock in the Bank of the United States.

Sec. 2. *And be it further enacted*, That the said Secretary of the Treasury shall vote for president and directors of the said company, according to such number of shares, and shall receive upon the said stock the proportion of the tolls which shall from time to time be due to the United States for the shares aforesaid.

Act of Congress of March 2, 1829:

Chap. 27.—An act authorizing the subscription of stock in the Chesapeake and Delaware Canal Company, and in the Dismal Swamp Canal Company.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Treasury be, and he is hereby, authorized and directed to subscribe, in the name and for the use of the United States, for seven hundred and fifty shares of the capital stock of the Chesapeake and Delaware Canal Company, and also for two hundred shares of the capital stock in the Dismal Swamp Canal Company, and pay for the same, at such times and in such proportions as may be required by the said companies, respectively; to be paid out of any money in the Treasury not otherwise appropriated.

Sec. 2. *And be it further enacted*, That the Secretary of the Treasury shall vote for president and directors of the said companies, respectively, according to such number of shares, and shall receive upon the said stock the proportion of the tolls which shall from time to time be due to the United States for the shares expended.

EARLY HISTORY.

Construction was completed, water was let into the Chesapeake & Delaware Canal July 4, 1829, and it has been continued in operation to the present.

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[1] Because of the wording of the Senate resolution of Oct. 8, 1914, the reports of which summaries are given are only those of "Government commissions, officers, and engineers."

The canal is 13⅝ miles long, and is 10 feet deep. It has three locks, one at Delaware City, a second at St. Georges, and third at Chesapeake City. Originally the locks were 100 feet in length and 22 feet in width. Later the length and width were increased to 220 feet and 24 feet, respectively.

The total original cost of the canal was $2,250,000, of which one-fifth ($450,000) was paid by the United States, $100,000 by the State of Pennsylvania, $50,000 by the State of Maryland, $25,000 by the State of Delaware, and the remainder by citizens of the three States.

The work was done by the Chesapeake & Delaware Canal Co.

SUMMARIES OF REPORTS.

REPORT OF 1872.

Legal authority: Resolution of Congress dated March 11, 1872:

> *Resolved*, That the Secretary of War be requested to communicate to Congress any information he may have upon the subject of the construction of a ship-canal from the waters of the Chesapeake to the waters of the Delaware Bay, and to state how much time would be saved by such improvement in the passage of ships from Baltimore to and from Liverpool and other foreign ports, and whether the building of such canal would not materially advance the interests of commerce.

Reported upon by Maj. William P. Craighill, Corps of Engineers, United States Army.

Date of report: March 25, 1872.

Report printed in Annual Report of Chief of Engineers for 1872.

QUOTATIONS FROM REPORT.

> Until a careful survey and comparison of lines for the proposed canal have determined its location, and consequently its length, it will be impossible to say with precision how much time would be saved by such an improvement in the passage of ships from Baltimore to and from Liverpool and other foreign ports.
>
> It is apparent from an inspection of a good general map that a canal connecting the two bays, as proposed, would materially shorten the distance from Baltimore to and from Liverpool and many other foreign ports, as well as those on our coast north of Baltimore.

REPORTS OF 1879 AND 1880.

Legal authority: The river and harbor act of June 18, 1878.

> SEC. 2. That the Secretary of War is hereby directed at his discretion to cause examinations or surveys, or both, and estimates of cost of improvements proper to be made at the following points, namely:
>
> The peninsula of Maryland and Delaware, with a view to the construction of a ship canal to connect the waters of the Delaware and Chesapeake Bays.

Reported upon by Maj. William P. Craighill, Corps of Engineers, United States Army.

Dates of reports: Preliminary report, February 7, 1879; report on surveys, November 18, 1879; supplementary report, January 8, 1880.

Report printed in Annual Reports of Chief of Engineers for 1879 and 1880 and in House Executive Document 102, Fifty-third Congress, third session.

QUOTATIONS FROM REPORTS OF 1879.

> In 1872, a company was incorporated by the Legislature of Maryland called the Maryland & Delaware Ship-Canal Co. The Legislature of Delaware also gave a charter to the same company.

The route selected by this company is that which joins Chesapeake Bay by the way of Sassafras River, and reaches the Delaware at or near Listons Point. This line is only about 10 miles south of the existing canal. This route has been reported upon by the late Mr. B. H. Latrobe.

The survey was a thorough one. It covered all the routes along which a canal was likely to be constructed.

The country is generally low and presents much sameness in many of its topographical features on all the routes.

It was proposed to have a canal of the same level throughout without locks, except tide locks, and these would probably be generally open and only exceptionally used.

The estimates were for a canal 100 feet wide at bottom and 26 feet deep at mean low water with locks 600 feet long and 60 feet wide.

Estimates were also submitted for a smaller canal of 15 feet depth at mean low water.

In comparison of the cost of the several routes, the figures refer to the large canal.

Six routes are estimated for, which may be referred to by the names and numbers given in the table below. The lengths given are respectively from Baltimore to a common point at sea, 12 miles outside of the Delaware Breakwater.

The Sassafras River route was not surveyed, because the funds available became exhausted, and because there were in existence a project and estimate for it. In the estimates, etc., herewith Mr. Latrobe's data, with revised prices, have been used. As it has lately become practicable to survey that route also, parties are now in the field upon it. A supplemental report will be shortly made containing the results of their work.

No.	Name.	Length.	Length of canal proper (or of excavation generally above low water).	Cost in millions of dollars.	Saving in distance.
		Miles.	*Miles.*		*Miles.*
1	Choptank	149.81	37.67	16½	175
	Choptank (inland)	138.91	....	18¾	186
	Choptank, including Broadkill	....	30.00	....	....
2	Wye	128.42	42.99	26½	196½
3	Queenstown	107.29	53.78	37¾	217¾
4	Southeast Creek	115.78	38.35	25	209¾
5	Centerville	106.38	50.95	41½	219
6	Sassafras	129.25	16.20	8	195¾

QUOTATIONS FROM REPORT OF 1880.

In my report of November 18, 1879, relative to the Chesapeake & Delaware Canal, it was stated that for reasons therein given a survey of the Sassafras River route had not been made, but would be at once.

The estimate is herewith submitted, amounting to $8,500,000, or about $500,000 more than the similar estimate for that route based upon data derived from the report of November 18, 1879.

As the Sassafras River route is preferred by many because of its being the cheapest yet estimated for, it would seem desirable also to determine the cost of enlarging and otherwise modifying the existing Chesapeake & Delaware Canal, which debouches into the Chesapeake Bay by the way of Elk River, the entrance thereto being but a few miles from that of the Sassafras. The United States has already spent about $500,000 on the Elk River route.

REPORTS OF 1882.

Legal authority: Sundry civil act of March 3, 1881.

For the expenses of the surveys to be made across the peninsula of Maryland and Delaware to connect by canal the waters of the Delaware and Chesapeake Bays, under the direction of the Secretary of War, ten thousand dollars.

Reported upon by Capt. Thomas Turtle, Corps of Engineers, United States Army, to Lieut. Col. William P. Craighill, and forwarded by the latter to the Chief of Engineers.

Date of reports: February 3 and July 6, 1882.

Reports printed in Annual Reports of Chief of Engineers for 1882 and 1883 and in House Executive Document 102, Fifty-third Congress, third session.

QUOTATIONS FROM REPORTS.

Capt. Turtle stated that—

> the reports and estimates made from former surveys related to six or seven different routes, and as a consequence of these reports and estimates the choice had been narrowed down to two standard routes: The southernmost, the so-called Choptank route, and the Sassafras route, the most northern of those surveyed. * * * A survey was also made of the line of the present canal from Chesapeake City, on an arm of the Elk River, to Delaware City, on Delaware Bay.
>
> This placed in competition for choice a southern route, the Choptank, and a northern one represented by either the Sassafras or Back Creek route.
>
> From Howells Point, on the Chesapeake, by the Sassafras, the distance to the Delaware is 32 miles and a fraction, beyond which there is still about 5 miles to 27 feet water.
>
> From Howells Point the line by way of the present canal passes up the Elk River and Back Creek and thence over the line of the canal about 11 miles, where the new cut will diverge southeastward and reach the Delaware in the anchorage inside Reedy Island, where there is now from 24 to 29 feet of water.
>
> From Howells Point to Reedy Island is 35 miles and a fraction.
>
> To accommodate the Philadelphia and New York trade which now uses the canal, the portion between the point of divergence of the new line and the outlet at Delaware City would be excavated to the proper depth below tide level.
>
> The question of the relative detention by ice on the different routes is one of very great importance. The records are somewhat meager, or are lacking in the essentials of minuteness as regards duration, thickness, and movement of the ice.

It was stated in reference to the Back Creek route:

> The canal is as accessible to vessels and steamers as any part of the adjacent rivers and bays during the time of heavy ice. At all times the canal and the approaches thereto can be kept open for navigation more readily than the channel of the Delaware River at the "Horseshoe" below Philadelphia. With a large class of vessels and steamers passing, the canal need not be closed by ice at all in three winters out of four, and then only for short periods in exceptionally severe seasons.

REPORTS OF 1882–83.

Legal authority: The river and harbor act of August 2, 1882.

> That the sum of ten thousand dollars or so much thereof as may be necessary, be and the same is hereby, appropriated, to be expended under the direction of the Secretary of War, in completing the surveys of a ship canal to connect the Chesapeake and Delaware Bays; and the Secretary of War is hereby directed to report to the Congress which of the various routes surveyed will afford the greatest protection in case of war and the greatest facilities to commerce by cheapening the cost of transportation from the city of Baltimore to the Atlantic Ocean, together with the cost of said improvement and its approaches, and the annual cost of maintaining and operating said canal when constructed: *Provided*, That nothing herein shall be construed to commit the Government to proceed with the construction of the said improvement.

Reported upon by Lieut. Col. William P. Craighill, Corps of Engineers, United States Army.

Dates of reports: December 5 and December 20, 1882, and March 1, 1883.

Reports printed in Annual Report of Chief of Engineers for 1883 and House Executive Document 102, Fifty-third Congress.

QUOTATIONS FROM REPORTS.

The main objects of such a canal are supposed to be two: The greater facilitation of the defense of a part of the territory of the United States by the opening of an interior short line of communication between the great bays—Chesapeake and Delaware—and the shortening of a great route of foreign and coastwise commerce. Both of these objects seem to be of national importance.

NOTES UPON THE MILITARY CONSIDERATIONS.

It will be doubted by no one that a ship canal connecting the two bays would be of vast importance in the contingency of war with a maritime nation. Such a connection would provide a means of concentrating the floating defense of the two bays, and besides this would render more secure communication between the naval stations of Philadelphia, Norfolk, and Washington.

Vessels defending a port have two offices to perform, the one being to assist in the direct defense or to prevent capture or occupation by a hostile force, the other being the prevention or breaking up of blockade. Without the canal a blockade at the capes of the Delaware would close the port of Philadelphia, or a blockade at the capes of Virginia would close the outward commerce of Baltimore and the other ports of the Chesapeake. With the canal built where communication would be secure, neither the ports of Philadelphia nor of Baltimore could be closed unless an effectual blockade were established both at the Delaware and Virginia capes. The disadvantage to the attacking party is obvious, while the defending vessels could concentrate at either outlet, and breaking the blockade at one point would open both ports and render the blockade useless at the other outlet.

It may be assumed that if a war with one of the great naval powers should arise, and the mere appropriation of the money could provide such a channel of communication between the bays, the amount would be at once provided without hesitation. That would, however, be too late.

The city of Baltimore is greatly interested in this canal. She is nearer the great cities of the West—Chicago, St. Louis, Cincinnati, and others—than Philadelphia, New York, and Boston, her great contestants for the trade of the West; but her situation at the head of Chesapeake Bay requires her commerce to take a longer route to the ocean than is convenient; that is, through the whole length of that bay.

In compliance with the above act estimate for the canal 27 feet deep, the other dimensions remaining the same, were submitted.

Choptank	$18,184,766.29
Sassafras	11,409,909.81

The estimate does not include the cost of obtaining possession of any chartered rights now existing over the latter.

The Back Creek route	$7,605,471.39

In this estimate no account was taken of the cost of obtaining full and unincumbered possession of the present canal and its property.

REPORT OF 1894.

Legal authority: River and harbor act of August 18, 1894.

That the President of the United States is hereby authorized to appoint a board, to consist of an officer of the Engineer Corps of the United States Army, not below the rank of lieutenant colonel, an officer of the United States Navy, not below the rank of captain, and two civilians, who, together with the Chief of Engineers of the United States Army, shall examine and determine, from the surveys heretofore made under the direction of the War Department, the most feasible route for the construction of the Chesapeake and Delaware Canal. And in making such selection said board shall select a route which in its judgment shall give the greatest facility to commerce and will be best adapted for national defense. The said board shall report its conclusions to the Secretary of War, who shall transmit the same to Congress at its next session; and the sum of five thousand dollars is hereby appropriated to pay the expenses of the said board.

Reported upon by the board, appointed by the President, composed of Brig. Gen. Thomas L. Casey, Chief of Engineers; Col. William

P. Craighill, Corps of Engineers; Capt. George Dewey, United States Navy; Mr. Mendes Cohen, of Maryland; Mr. E. Porter Alexander, of South Carolina.

Date of report: December 8, 1894.

Report printed in House Executive Document 102, Fifty-third Congress, third session.

QUOTATIONS FROM REPORT.

The limitations placed upon the board are (1) to examine and determine from the surveys heretofore made under the direction of the War Department, the most feasible route for the construction of the Chesapeake and Delaware Canal; and (2) in making such selection, to select a route which shall give the greatest facility to commerce and will be best adapted for national defense.

All the routes heretofore surveyed have had in view the connection of Baltimore with the ocean by a canal which would shorten the distance from that city to the ocean now determined by the natural route of the Chesapeake Bay. A number of lines have been surveyed, several of them having a nearly common terminus on the Delaware side at the mouth of that bay near the breakwater.

Undoubtedly coastwise traffic will be the more benefited by the canal. The gain in time arising from the use of any of the routes by foreign traffic is so small in comparison with the duration of the entire voyage that vessels will not be apt to risk encountering the delays to which navigation is liable in restricted channels. This board is of the opinion, supported by the information at hand, that a canal constructed on any of the suggested routes would be used largely by domestic or coastwise trade, and probably to but a very limited extent by foreign commerce.

Whether the canal would be utilized or not by foreign traffic would have no bearing on its dimensions, inasmuch as these must be sufficient for ocean-going vessels, if the canal be adapted to use by vessels of war for purpose of national defense.

A canal will facilitate water-borne commerce, but it may also serve to obstruct land borne, by the interruptions due to bridges that must be opened when the canal traffic is not carried on in barges alone. The number of bridges, both highway and railroad, which would be called for diminishes the more northerly the route. But the selection of the more northerly route is especially indicated when its adaption for national defense is considered. The matter of national defense involves more than the transit of vessels of war from bay to bay. The route itself must be defended, and its defense involves the construction of fortifications so located as to guard the canal entrance. No difficulty will attend the selection of proper sites for such works on the Chesapeake Bay; but the case is different on the Delaware Bay, with its wide shoals separating its western shore from deep water, while the shore from Cape Henlopen to Listons Point (near the eastern end of the Sassafras route) presents an almost unbroken marsh, several miles in width, much of it overflowed at high water and none of it more than 4 feet above low water.

The Board of Engineers of the United States Army has prepared a project for the defense of Philadelphia, which has received the approval in turn of the Chief of Engineers and of the Secretary of War. The execution of this project has been initiated, and the works contemplated will serve for the defense of both Philadelphia and the eastern entrance to the existing canal.

Any one of the other routes would require special fortifications for the defense of its Delaware Bay end, and the width of this bay and the character of its shoals and westerly shore are unfavorable to a system of complete defense at a cost at all within reason.

Such works as might be constructed below those already projected would not do away with the necessity for the latter.

So far as commerce is concerned, a canal connecting the two bays will inure more especially to coastwise traffic. Such canal must eventually form but a link in a chain of interior navigation. To this navigation the most northerly of the routes is best adapted, affording as it does the minimum of restricted canal way and the minimum of total length.

To conclude: After examination of the surveys heretofore made under the direction of the War Department, this board determines the most feasible route for the construction of the Chesapeake & Delaware Canal to be the Back Creek route, which is substantially located upon the line of the existing Chesapeake & Delaware Canal.

REPORT OF 1907.

Legal authority: Joint resolution No. 37, approved June 28, 1906.

JOINT RESOLUTION (No. 37) Authorizing the President of the United States to appoint a commission to examine and report upon a route for the construction of a free and open waterway to connect the waters of the Chesapeake and Delaware Bays.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the President of the United States is hereby authorized to appoint a commission, consisting of an officer or retired officer of the Engineer Corps of the United States Army, an officer of the United States Navy, and one person from civil life, to examine and appraise the value of the works and franchises of the Chesapeake and Delaware Canal, connecting the waters of the Chesapeake and Delaware Bays, with reference to the desirability of purchasing said canal by the United States and the construction over the route of the said canal of a free and open waterway having a depth capacity sufficient to accommodate the largest vessel afloat at mean low water. Said commission, to the extent that the same can be done from the surveys heretofore made under the direction of the War Department and within the limits of the appropriation herein made, shall also examine and investigate the feasibility, for the purpose of such a waterway, of the route known as the Sassafras route. The said commission shall make a report of its own work, together with its conclusions upon the probable cost and commercial advantages and military and naval uses of each of said routes, to the Secretary of War, who shall transmit the same to Congress at its next session. The sum of ten thousand dollars, or so much thereof as may be necessary, is hereby appropriated, out of any money in the Treasury not otherwise appropriated, to pay the expenses of said commission, including such clerical assistance as may be deemed necessary by said commission and such reasonable compensation for the services of the members of said commission as the President in his discretion may see fit to allow.

Reported upon by the commission appointed by the President of the United States. Felix Agnus, chairman; C. A. F. Flagler, major, Corps of Engineers, United States Army; F. T. Chambers, civil engineer, United States Navy.

Date of report: January 1, 1907.

Report printed in Senate Executive Document No. 215, Fifty-ninth Congress, second session.

The commission was organized at a meeting in Baltimore on July 30, 1906, Gen. Felix Agnus being elected chairman.

QUOTATIONS FROM REPORT.

CHESAPEAKE & DELAWARE CANAL.

Appraisal.—In the appraisal of the works of the Chesapeake & Delaware Canal, the canal company was called upon to furnish detailed bills of inventory of its property with itemized valuation, but repeated requests failed to secure any but the most insufficient and almost totally useless figures. If there are any records of surveys showing the original profile of the canal route, or of the canal in detail, as it now exists, the commission has not been able to secure them. To make such surveys would consume more time and money than are available, and in view of the fact that it is wellnigh impossible to separately evaluate "the works and franchises," the latter being practically inseparable from the former, expensive surveys in this connection would prove unjustifiable. The commission has, however, considered the value of the works and franchises in every way (see Appendix B) and it states as its appraised "value of the works and franchises of the Chesapeake & Delaware Canal," $2,514,289.70.

Its desirability for a ship canal.—In considering "the desirability of purchasing said canal by the United States and the construction over the route of said canal of a free and open waterway having a depth and capacity sufficient to accommodate the largest vessel afloat at mean low water," the commission has adopted the following dimensions:

Cross section.—To permit uninterrupted navigation in both directions requires a full depth width of twice the extreme beam of large vessels plus a sufficient margin. Assuming the maximum beam of the largest vessels at 80 feet, a full depth width *of*

150 feet has been adopted as a minimum. This widened *to 200 feet in marshes* and mud flats, and to so high *as 350 feet on curves*, depending on the radius. The draft of the "largest ship afloat" has been taken as 33 feet, and a mean low water depth of the canal is adopted of 35 feet. These dimensions are regarded as minima under public resolution No. 37.

The present ship channel maintained in the Delaware River is 600 feet wide, and this bottom width with side slopes of 1 on 5 is adopted for the cross section in exposed waters. In sheltered waters, such as the Sassafras and Elk Rivers and in Back Creek, the width of 200 feet on the bottom is adopted as ample.

Locks.—For a ship canal intended and expected to carry a very large commerce of the heaviest draft vessels, the commission considers that for the short cut through low country by either route, nothing but a tide-level canal would be justifiable, and consideration is given only to tide or guard locks. Difficulty in securing a summit water supply is also strong additional argument for a tide-level canal.

Jetties.—At the débouché of the canal into the Delaware by either route the approach must pass for a considerable distance across very shallow mud flats. The tidal flow along the bank would tend to rapidly obliterate any channel dug across the line of flow, and it is deemed essential that the entrance channel be protected on both sides by jetties for at least 1,000 feet from the shore.

Bridges.—The commission considers that where bridges must cross the canal such provisions should be made as will allow the greatest freedom of navigation. Estimates, therefore, are based upon draw spans with ample passageways on both sides of the central or pivot pier, necessitating a considerable widening of the dredged channel on both approaches to either bridge. A clear passageway of 120 feet is adopted. Estimates are based upon masonry substructures and steel superstructures, the minimum height of roadway being assumed at 20 feet above mean low water. As the majority of the bridges are much higher than this above the water, passage can be had by many vessels without the opening of the draw span.

Maintenance.—The maintenance of the canal will comprise supervision, inspection, and surveys, repairs to banks, revetments, and permanent structures, dredging, ice-breaking, lighting, and operation of bridges.

Estimate of cost.—$20,621,323.70.

As the present depths in both the Chesapeake and Delaware Bays are 30 feet for dredged channels, the commission has also estimated the cost of such a channel and finds that, using the same bottom widths in open channels and surface widths in land cuts with the same side slopes as for the 35-foot channel, the cost would be reduced to $17,312,064.70.

There is every indication of a large reservoir of supply of very fine sand which is water bearing and flows with water. In the opinion of the commission, the sand might require at intervals work on both sides of the canal over an approximate length of 7,000 feet to confine it. * * * The commission with data available can not make even a probable estimate as to the cost of such works, but feels that a certain sum should be quoted therefor, and has stated this estimate above as $500,000.

THE SASSAFRAS ROUTE.

In its investigation of the route known as the Sassafras route, * * * the commission has made use of previous surveys and conducted borings and supplementary surveys in a manner closely parallel with that adopted for the present Chesapeake and Delaware or Back Creek route.

The estimate for the canal by this route as adopted by the commission is $21,143,470.

Should a preliminary 30-foot depth of channel be adopted, the cost, as above noted, for the Chesapeake and Delaware Canal route will be reduced to about $18,414,639.

THE COMMERCIAL ADVANTAGES.

Thus far the routes have been considered separately. The remaining points should be considered together, the military, naval, and commercial uses being either identical for the two or directly comparable.

In the commercial sense the difference between the two routes is so slight as to be inconsiderable when other items, such as engineering features, cost, or effects upon existing interests are taken into account. The present Chesapeake and Delaware route is slightly shorter to Philadelphia, the Sassafras to the mouth of the Delaware.

The distance from Baltimore to Philadelphia will be shortened by 323 miles, from

Baltimore to the mouth of the Delaware Bay by 184 miles by the Chesapeake and Delaware Canal. Vessels can proceed from Baltimore to the mouth of the Delaware with full protection in weather when it would be hazardous to venture into the open sea.

The history of this canal project across the Maryland and Delaware peninsula has been a constant emphasis of its advantage to commerce.

At each of the public hearings in Baltimore, Wilmington, and Philadelphia, the business organizations of the city were represented by committees of leading citizens and speakers, including Representatives in Congress, members of the judiciary, and officers of the city and State. The commission found in these great cities—and elsewhere also—a remarkably efficient and practically unopposed demand for the ship canal.

Even stronger testimony may be found in the action of the commercial bodies and other public organizations of the cities and towns along the Atlantic seaboard, the more important of which are contained in the records of public hearings on file with the proceedings of the commission.

The significant development of the public hearings was the conviction of leading business and transportation experts that the railroads of the Atlantic seaboard were having great difficulty in handling freights and that the extraordinary growth of the country's business had already taxed them to the limit of their facilities. In the Eastern States the freight congestion has become a serious embarrassment to business. * * * The rise of the railway caused the decline of the canal until recently, when the railway could not meet all the public demands.

It is very unfortunate that there are no satisfactory statistics of our coastwise trade, although it represents many times the value of our foreign commerce.

The fact that vessels engaged in coastwise trade are not required to file copies of their manifests at the customhouses makes the record difficult.

The projected canal across the Maryland-Delaware peninsula would unquestionably be a great convenience to foreign shipping. The view that it would not be used by ocean-going ships is the same contention that arose when the other great ship canals were built, but their history has shown that when the channel is cut the ships will always take the shortest course.

The Delaware and Chesapeake Bays have a shore line of 2,500 miles, with 500 tributary streams and more than 10,000 registered vessels.

The commerce of the Delaware and Chesapeake Bays, registered and otherwise, has been estimated all the way from 50,000,000 to 90,000,000 tons annually. This is much larger than the tonnage of the entire annual foreign commerce of the United States.

Of the registered tonnage traffic in a recent compilation, 25,873,167 were on Delaware Bay points and 24,151,932 on Chesapeake Bay points. These figures, however, do not include the undocumented and unregistered tonnage traffic, which would add nearly 100 per cent to the total.

Considerably less than one-tenth of the traffic on the Delaware and Chesapeake Bays and their various points belongs to foreign commerce. The great value of the proposed canal would be in facilitating the coastwise trade.

It is estimated that at least 2,000,000 tons of coal would go through this canal to consumers farther north. Under the present conditions much of this coal has to make a detour by way of the capes, and often the vessels must lie at Hampton Roads 10 or 12 days, and even two weeks, waiting a shift of wind.

The experts who appeared before the commission believe that the canal would cheapen coal for the New England points. Lumber will be an important item. Its movement northward from the Carolinas and other Southern States is much hampered by the inadequacy of the present canal. With a free canal the cost would be about half the present rate, according to the experience of the lumber trade on the Great Lakes.

Coal and lumber have been mentioned, but they are only two of the numerous products, among which may be counted cotton, corn, staves, hog products, poultry and vegetables, live stock, hay, fisheries, tobacco, coke, wool, potatoes, peanuts, phosphate, turpentine and resin, zinc, and stone.

It is estimated that the South each year has over $2,000,000,000 worth of raw materials. A very considerable part of all this seeks northern markets, and in return the North sends machinery and supplies of all kinds. All this movement would be aided by the proposed canal. The manufacturing interests touched by waterways, which this canal would connect, and of which it would become part, have an annual total production of considerably more than $1,000,000,000.

Many of the great industrial concerns have located on the seaboard so as to have the advantage of cheap transportation.

It is the commission's opinion that the deep-water canal across the upper end of the peninsula would be of very great advantage to commerce. It would give the West a seaboard more than 100 miles nearer the ocean than it now has. It would relieve hundreds of vessels of the necessity of a dangerous sea route, which in years gone by has cost tens of millions of dollars in wrecks. It would save time and expense to the trade movements of the whole country. It would immediately affect the 11,000,000 people upon the two bays and their tributaries, and would contribute to the interests of all the population, it would stimulate production and be of direct financial benefit to American industries. The commission believes the commercial advantage will fully justify the expenditure of the funds necessary to complete the work.

MILITARY AND NAVAL USES.

In a general strategic sense the military advantages of the proposed ship canal appear most prominently in the channel offered for the rapid transit of naval vessels from one bay to the other to concentrate against hostile naval fleets or for the breaking of blockades.

To make the canal thus available at all times, its termini must be thoroughly protected by sufficient coast defenses to render its passage at all times open. This is at present secured on the Delaware for the Chesapeake & Delaware Canal route by existing defense, and on Chesapeake by the defenses of Washington, Baltimore, and Hampton Roads, which an attacking naval force would hesitate to leave in its rear, sheltering cruisers that could demolish its boats of communication and supply. But full strategic use of the canal would be secured only by adequate coast defense at each terminus. It is not considered that a project for the defense of the Chesapeake terminus lies within the scope of this report, as such project should receive careful consideration by competent board of military engineers. The cost would be practically the same for either route.

Assuming, however, that both termini are to be properly defended the canal itself offers many advantages to such defense by the ready means of intercommunication afforded. The canal would permit the prompt interchange of troops and munitions between the coast batteries and particularly of the submarines, scout boats, and coast-defense monitors, that now form an important factor in seacoast defense, thus minimizing the number required for a complete defense.

Another important feature of the canal would be the obstacle presented by it as an adjunct for land defenses. These would serve as a base for troops operating to break up military occupation of the peninsula, or to check advances therefrom, without reembarcation should such occupation become effective. A geographical study of the Atlantic coast of the United States, as at present defended, shows the peninsula of Maryland and Delaware as the most vulnerable and suitable place for the location of a base for land operations should our Navy be driven from the seas. This was demonstrated by history in the War of 1812.

The line of the canal properly defended would also prevent the closing of land communications to the coast forts on the Delaware, in case their reduction by siege should be attempted, with the view to opening the way for a naval advance on Philadelphia. Should the proposed Sassafras route be selected for the route of the canal, additional defenses would be required on the Delaware to protect the entrance and prevent distant bombardment of vessels in the canal. Such defense would require the expenditure of over $2,000,000 for the abandonment of the present defenses of the Delaware and their reestablishment at a point farther down the river, probably in the vicinity of Listons Point.

The Civil War developed the enormous value of the present canal as a means of transportation of troops, supplies, and prisoners. While our railroad facilities have greatly increased since that time, it is easily conceivable that in future wars or internal disturbances, the proposed ship canal would very likely prove an important adjunct to rail transportation and possibly a vital factor in campaigns, should rail transportation be interrupted by accidents, strikes, or hostile raids.

The experts of the present naval general board would be satisfied for the canal to pass vessels of 16-foot draft and 60-foot beam; in other words monitors, torpedo boats, and destroyers. The commission fully agrees that the principal naval uses of the proposed canal would probably be as stated and is inclined to think that for present purposes a canal of 30-foot or perhaps of even 27-foot draft would be ample. It further believes that just as many battleships will be required with as without the canal, as it would plainly not be within the province of the heaviest of the fighting units to remain in harbor entrance for local defense.

However, it is the opinion of the commission that the experts look too much to victory and ignore such conditions as defeat or at least heavy punishment in battle.

While the general board of the Navy may not recognize the probability of transference of the battle fleet, as a whole, through the Chesapeake and Delaware canal it is not difficult to conceive of that fleet, badly crippled in a general engagement at sea, limping home in detail to be divided for repairs among several such navy yards as Norfolk, League Island, and New York. When repairs are finished the safer and better way to assemble would be by way of the ship canal, either to the Delaware or the Chesapeake.

It is the opinion of the commission that aside from commercial uses, the construction of the proposed canal will be of great strategic value as an adjunct to our land and naval forces.

THE SELECTION OF ROUTE.

Although not definitely required by the provisions of the joint resolution, the commission considers that in view of its careful and extensive examination of the subject, it should express its opinion upon the relative desirability of the two routes, and states that the present Chesapeake and Delaware Canal route is equal to or better than the Sassafras route under practically all phases of comparison.

It is cheaper of construction and the cost of maintenance would be practically the same.

The two routes offer the same advantages from a commercial viewpoint.

The military and naval advantages will be equal, except for the cost of moving the defenses of the Delaware, giving an additional advantage in favor of the Chesapeake & Delaware Ship Canal route.

The Government may see fit to purchase the present Chesapeake & Delaware Canal and deepen it gradually. This seems to be the course advised by those who have appeared before the commission or communicated their views to it. While terms of the joint resolution do not direct the commission to express its conclusions upon this phase of the subject, yet the sentiment is so strong and proceeds from such responsible sources that the commission suggests the advisability of acquiring the Chesapeake & Delaware Canal at an early date if practicable and if it can be done at a cost not exceeding $2,514,289.70.

At the various hearings before the commission there were many arguments for a canal of much shallower draft than those estimated for in this report. Such a canal would unquestionably be of enormous value in supplementing the proposed barge canal from Beaufort, N. C., to Norfolk, Va., now under consideration by Congress. The immediate advantages of these interior facilities to the coastwise trade, which could be obtained at comparatively small cost, have been recognized by the commerical interests of the country and by the reports made to Congress, and have been constantly emphasized in the investigations of this commission so insistently that the commission feels the obligation to give it more than a mere mention in its report.

The present Chesapeake & Delaware Canal is the most important link in the proposed waterway from the Gulf to the city of Philadelphia for barge traffic, and its purchase and improvement by the Government would be a benefit of extraordinary value.

APPENDIX.

APPRAISEMENT OF CANAL PROPERTY.

Total value by canal company, $5,348,071; by commission, $3,708,186.

The States of Maryland, Delaware, and Pennsylvania own stock. The commission communicated with their authorities and could get from them no price. The board of public works of Maryland adopted resolutions saying the stock was carried on the books as a nonproductive asset. After diligent inquiry the commission was unable to find that the stock had any present value, so that it has been ignored in these estimates.

Bonds and investment holdings.—The bonds representing funded indebtedness on which interest has been regularly paid are reported by the company to be $2,602,950, at which amount they have remained since May 31, 1887. On this amount interest at 5 per cent was paid until and including 1893, since which time 4 per cent has been paid.

By statement of the canal company in the total of bonds, $2,602,950, there was included a fraudulent overissue of $609,200.

The last sale of the Chesapeake & Delaware Canal bonds on the Philadelphia Stock Exchange was on April 11, 1906, at 47, and the last sale at auction was on January 26, 1905, at 48½.

Judged by these sales the market value of the property would be about $1,300,000; but the commission does not consider that a reasonable price. There has been no default of interest on the bonds and the property should be able, with proper management, to earn at least 4 per cent upon the funded indebtedness. The commission decided that, on this method of appraisement, 5 per cent on net earnings would be fair, and this would produce as the value of the property $2,083,600, taking the interest paid, $104,118, for the past 13 years as the net earnings. It is to be noted that the deficit increased from $357,291.87 in 1887 to $402,317.37 in 1906.

The company reports the following investment holdings:

"Loan, Chesapeake & Delaware Canal Co., $13,597.31; loan, general mortgage, Philadelphia & Reading Railroad Co., $6,000; 68 shares common stock Philadelphia & Reading Railroad Co. and 28 shares preferred stock of same company, $4,800; loan, Lehigh Coal & Navigation Co., 4½ per cent, $10,000; 200 shares stock Lehigh Coal & Navigation Co., $10,000; real estate in Philadelphia, $10,104.05; cash, $11,765.59; total, $66,266.95."

To which the company, under date of September 1, 1906, gives a market value of $73,310.30.

The canal company, under date of October 9, 1906, called the commission's attention to the canal's "net earning capacity to-day, viz, $113,604, which is 3 per cent (at which rate the United States can borrow money) on $3,786,811." The commission was unable to take this view of the facts. For the fiscal year ending 1906 a very large increase in the gross earnings of the property was reported, producing for the year a surplus above interest charges of $9,486.32, whereas for the five years preceding there had been deficits.

In the 13 years during which the interest charge of $104,118 has been paid upon the funded indebtedness of $2,602,950, the net earnings reported * * * made a total of $51,864.58, and the deficits * * * made a total of $57,336.46, or for the 13 years a deficit of $5,471.88. The commission is therefore unable to go beyond the $104,118 as the net income of the company. On this basis and again using 5 per cent as the fair rate, the commission arrives at the same total as by the previous calculation, viz, $2,083,600.

The commission put to the company the following inquiry: "A definite proposition from company, itemized, as to the various points and giving a sale price on the whole of the company's interests."

And the company replied, under date of August 31, 1906: "We would advise that it is not practicable for us to carry out your suggestion. There are approximately 340 stockholders and 531 bondholders of the company. To enable us to intelligently approach them in the premises it would be necessary for us to be in a position to at least intimate to them, approximately, a price or basis that might be obtainable for their securities if negotiations then pending eventuated in an agreement of sale."

The commission made further efforts to get from the company a definite proposition. Its representatives who appeared before the commission were asked to name a price.

The commission has here fully considered the figures and values which the company has named in its various communications. The commission is convinced that "the value of the property from the point of view of cost of reproduction," even at its own valuation of $3,708,186 is far too high for the Government to pay, when condidered, as it must be by the terms of the resolution of Congress, in connection with "the construction over the route of the said canal of a free and open waterway having a depth and capacity sufficient to accommodate the largest vessel afloat at mean low water." The value of the works of the present canal as a part of a ship canal is relatively very small and has not been estimated.

Taking the funded indebtedness as $2.602,950, the net income as $104,118, and a fair rate for appraisement as 5 per cent, the commission finds $2,083,600 as the value. But it may be considered that if the Government should purchase the works and franchises of the canal company it would assume the funded indebtedness of the company, placing the total issues of bonds at par, or $2,602,950. Deducting from this sum the value of the floating plant and of the outside holdings of the company, which the commission has stated above it is not advisable to acquire, there remains the sum of $2,514,289.70. The commission believes that no higher value than this $2,514,289.70 should be paid by the Government for the works, bonds, franchises, and real-property holdings and all other claims of the Chesapeake & Delaware Canal Co., except those just cited, viz, the floating plant and the outside holdings.

All earning values accruing from the franchises are included in this $2,514,289.70. If a higher price than $2,514,289.70 should be demanded by the owners of the canal, the commission recommends that condemnation proceedings be employed.

THE GOVERNMENT NOT LIABLE.

The Judge Advocate General, in a report dated October 26, 1906, has fully covered the question as to whether if either route was selected there would be any liability of the United States to the owners of the other route by reason of the depreciation of their property due to the construction of a public free canal; and as to whether if a third route be selected, different from either of those mentioned, there would be any such liability to the owners of either or both of said routes. The Judge Advocate General finds that the Government would not be liable.

Value of locks, floating and other property, belonging to the Chesapeake & Delaware Canal Co.

Delaware City, Del., lock		$120,000
St. Georges, Del., lock		118,220
Chesapeake City, Md., lock		147,970
Total		386,190
In round figures		400,000
Floating plant		12,400
Telephone line		2,000
Stone, 44,000 perch, at $3		132,000
Revetment, 70,000 feet, at $1		70,000
Tools, machinery		1,000
Buildings		30,000
Pumping plant		50,000
Bridges:		
Four, at $4,000	$16,000	
One, at $15,000	15,000	
		31,000
Total		328,400

This * * * covers all the property of the canal company claimed in their letter of October 31, 1906, excepting the values of the land holdings and of the excavation, including a sluice 83 feet long extending across the waterway between Delaware City and St. Georges. The reservoir and gates at Chesapeake City are included in the valuation of the lock at that locality.

Extracts from the minutes of the board of public works, State of Maryland, at a meeting held in Baltimore, Thursday, November 15, 1906:

Resolved, That Gen. Agnus be informed that the State of Maryland owns $81,250 of the capital stock of said Chesapeake & Delaware Canal, and that the same is carried upon the books of the treasury department of the State as a nonproductive asset, because no dividends have been paid upon the same since 1877;

Whereas, this board is authorized to dispose of any stocks or bonds held by the State of Maryland after due advertisement:

Resolved, That Gen. Agnus be informed that the board could not, as now advised, fix a price for this stock, but will be pleased to advertise the same for sale in order to secure a bid therefor and thereby be able to fix its value.

Resolved, That it is the sense of the board that if the United States Government will purchase said canal and construct over the route of the same a free and open waterway, having a depth and capacity sufficient to accommodate the largest vessel afloat at mean low water, it would be good policy upon the part of the State to contribute its holdings toward said project, and that the board would recommend that the next session of the Maryland Legislature take the necessary steps to authorize such action upon the part of the board of public works.

Which resolution was unanimously adopted.

From Capt. Philip Reybold's address before the commission at Wilmington, Del.:

Just look over to Bermuda, only 600 miles off your coast, with its harbors, coaling stations, and dry docks, and to Halifax, where the same conditions exist near your main border—harbor bases to harbor great fleets of battleships, cruisers, and armorclads, bases from which they can be sent out to scour our coast. We are taught from earliest boyhood that history repeats itself, and there is some history that we want this Government to take steps to prevent its ever being repeated.

On the 24th day of August, 1814, the battle of Bladensburg was fought, and the British, under Gen. Ross and Admiral Cockburn, captured Washington, burning the Capitol, White House, and all the public buildings. The American people do not want that repeated. Suppose to-morrow that the lookout at Cape Hatteras or Kitty Hawk should send a message flying over the wires that a foreign fleet was heading for the Chesapeake Capes with their battle flags flying, would not a ship canal then, along the line of the Chesapeake & Delaware Canal be worth $20,000,000 to the Government, through which battleships from League Island could be rushed and stop that fleet before it reached the mouth of the Potomac? It was this disaster that resulted in the building of the Chesapeake & Delaware Canal, and that is why the Government contributed $450,000 toward its construction.

Now, sir, do you realize what an important part this little canal, with its lock only 24 feet wide and only 10 feet of water over its sills has played in the history of this country? Now let us see: On Wednesday the 17th day of April, Virginia seceded from the Union and was starting her troops north to go to Washington. There was not a handful of troops in that city nor a breastwork thrown up, and the Federal Government started its troops south. You know what happened in Baltimore on Friday, the 19th of April, as the Sixth Massachusetts passed through, and that night every bridge on the Philadelphia, Baltimore & Washington Railroad was burned on from Baltimore to the Susquehanna River and totally destroyed, and the Federal Government had absolutely no means of transporting troops along the seaboard by rail to Washington; in fact, all land communication was severed.

On Saturday, the 20th, the Government seized all the propeller steamers in Philadelphia that could pass through the Chesapeake & Delaware Canal and before daylight in the morning they were at Perryville, and just as the sun was peeping up over the horizon the trains arrived with the troops, when they were rushed on board of steamers and hurried away down the Chesapeake to Annapolis and by way of Annapolis Junction to Washington, and when that body of troops arrived at the Capital the Confederate outposts were at the Virginia end of the Long Bridge, and for the next 30 days this Chesapeake & Delaware Canal was the key to the whole Federal situation. This canal throughout the whole war played a most important part; it kept the Army of the Potomac in the field; it fed them; it clothed them and furnished them with their ammunition and all other stores.

Now, sir; if this little canal with locks only 24 feet wide and only 10 feet of water over its sills was so vital then, what would a ship canal be along its course if a foreign fleet was on our coast? Take the Kiel Ship Canal—it is 64 miles long and cost Germany forty millions, but it saves just two days steaming around the peninsula of Denmark. Experts estimate that canal as being equal to 15 battleships to Germany as a means of defense. Take this peninsula of Delaware, Maryland, and Virginia—it takes 48 hours to steam from the Delaware end around to the Chesapeake end—and if you had a ship canal cutting through those 14 miles of peninsula, it would be worth a whole fleet to the United States, as one fleet would be able to do the work of two; and it seems to me, sir, taking that side of the question and the commercial side, that the shorter the canal and the more directly north and south it runs the better it will be for both the commercial and military interests. When this great chain of the canals is completed and the Erie Canal finished, then you can load your coal barge in Baltimore and send her through to Duluth, and when the coal is discharged you can reload with iron ore, carry it back to Sparrows Point, and there fashion it into a steamship to carry the products of the Baltimore mills by way of the Panama Canal to Valparaiso or China.

CONCLUSIONS OF THE COMMISSION.

1. *Appraisement of the Chesapeake and Delaware Canal.*—The commission believes that no higher value than $2,514,289.70 should be paid by the Government for the works, franchises, bonds, real property holdings, and all other claims of the Chesapeake & Delaware Canal Co., except certain outside holdings which have been deducted.

2. *The desirability of purchasing said canal and the construction over the route of a free ship canal.*—The commission believes the purchase of the present canal to be desirable and the construction over the

route of a free ship canal to be justified by the demands of commerce and by military and naval considerations.

* * * * * * *

5. *The commercial advantages.*—The commercial advantages would be practically the same by both the Sassafras and the Chesapeake & Delaware route.

6. *Military and naval uses of each of said routes.*—They would be identical, except that the selection of the Sassafras route would necessitate the removal of the present defenses of the Delaware entailing an expenses of $2,150,000.

7. *The selection of route.*—The commission believes the present Chesapeake & Delaware Canal route to be better, because for a ship canal it would be cheaper; because it offers equal commercial advantages; because, being defended, it has an additional advantage of cost of $2,150,000; because it has fewer bridges, and because it is a developed property possessing earning capacity.

REPORTS OF 1911 AND 1912.

Legal authority: The river and harbor act approved March 3, 1909.

SEC. 13. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys to be made at the localities named in this section, as hereinafter set forth.

Survey for the construction of a continuous waterway, inland where practicable, from Boston, Massachusetts, to Long Island Sound including a waterway from the protected waters of Narragansett Bay through the ponds and lagoons lying along the southern coast of Rhode Island to Watch Hill and Fishers Island; thence to New York Bay; thence across the State of New Jersey to a suitable point on Delaware River or Bay; thence to Chesapeake Bay; thence from Norfolk, Virginia, to the sounds of North Carolina and Beaufort Inlet, North Carolina, for the purpose of ascertaining the cost of a channel with a maximum depth of twenty-five feet, or such lesser depths along any section or sections of the said waterway as may be found to be sufficient for commercial, naval, or military purposes. Such survey shall include an examination of all practicable routes, the preparation of plans and estimates of cost along the most available route, and a report upon the desirability of utilizing as a part of such waterway any existing public or private canal, or any part thereof and the probable cost of acquiring the same.[1]

In compliance with these directions the Chief of Engineers, by authority of the Secretary of War, convened special boards of Engineer officers to consider and report on each division of the intracoastal waterway named in the act. And as required by law the report of this special board was referred to the Board of Engineers for Rivers and Harbors.

Reported upon by: (A) A special board of Engineer officers consisting of Col. W. M. Black, Col. Frederic V. Abbot, Lieut. Col. J. C. Sanford, Lieut. Col. Mason M. Patrick, and Maj. R. R. Raymond; (B) by the Board of Engineers for Rivers and Harbors, William T Rossell, colonel, Corps of Engineers, senior member of the board.

Dates of reports: (A) October 4, 1911; (B) December 12, 1911; (C) January 2, 1912.

Reports printed in House Document 391, Sixty-second Congress, second session.

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[1] Attention is invited to the fact that this item of law precluded recommendation of any depth greater than 25 feet.

(A)

QUOTATIONS FROM REPORT OF THE SPECIAL BOARD.

GENERAL REMARKS ON FREIGHT TRANSPORTATION.

The general question of the advantages to be gained by opening through water routes for the carriage of freight have been discussed in numerous reports and papers during the past few years. It is unnecessary for this board to go deeply into this subject in this report, but it may be well to touch on certain aspects.

It is claimed that large outlays for the improvement and construction of internal waterways are uneconomical in that the service of freight carriage can be performed better and with greater economy along the coast by ocean-going lines (including steam and sail cargo vessels and ocean-going lines of barges under tow) and internally by the railways. In support of this is cited the great development of the coastwise and Great Lakes traffic and of the railway systems and the decline in many instances of water-borne commerce of the rivers after parallel lines of railways have been established. It would appear to the board that such reasoning is only partly justified in fact.

The annual losses of life and property in the coastwise trade of the United States are appalling and are apparently unavoidable. To minimize these losses the vessels used must be strongly built and of an expensive type. The relative cost of the type of carrier per ton is approximately as follows:

Ocean vessels	$75.00
Lake vessels	41.50
Mississippi River tug with barges for 10,000 tons of freight	12.00

To offset the losses marine insurance is taken out, which for an outside route runs from 8 to 12 per cent annually, as against an average of 4 per cent for an inside route.

Both of these factors make toward an increase of cost of carriage.

Another increment of cost for an outside route lies in the greater time consumed, due to a longer course generally necessarily followed, and to delays incident to fog and storm.

From figures presented, the board believes that navigation by interior lines presents advantages to commerce over outside routes which vary in value for different sections, but which are sufficient in general to justify the opening of certain interior lines.

The decline of internal waterway traffic in many localities which has followed the construction of railway lines the board believes to be due to causes other than the inherent advantages of railway freight traffic, and which are to a certain extent artificial.

The decline of the volume of water-borne commerce in competition with the railways is partly due to other causes which should be mentioned. In the past railway development in the United States has been in advance of the actual necessities of commerce. Under these circumstances, in their fight for existence, the railways have been permitted to make discriminating rates by which points at which water competition was possible are served more cheaply by rail than are points not so favored. Instances are of record where a waterway carries little or no commerce, but where its presence causes a lower railway freight rate within the area of its zone of influence. The condition is wholly artificial and must disappear in measure as the inflexible necessities of world competition shall force production and trade into the area and lines of least cost.

Railways are a necessity and have natural advantages sufficient to justify continued existence and extension. It is a mistake to assume that the opening of additional channels for commerce by improving the waterways will necessarily be disadvantageous to the railways. Each channel of commerce has its own legitimate field of operations—and the increase of the facilities for intercommunication where wisely made, is invariably followed by increased prosperity for all.

GENERAL REMARKS ON THE MILITARY VALUE OF THE PROPOSED WATERWAY.

It is a well-established principle that, for the defense of a frontier threatened by an attack from without, at some unknown point the forces for the defense shall be concentrated within the frontier line at points from which they can be moved rapidly and safely to the actual point of attack when developed. The proposed intracoastal waterway between New York and Norfolk forms a most desirable line for such movements of troops, lying as it does for its entire distance under the shelter of fortifications built or planned for the defense of the coast.

The usefulness of such portions of this inland waterway as were in existence at the outbreak of the Civil War was thoroughly proved in the operations at that time.

For the movement of troops, sheltered water transportation affords many advantages over transportation by rail.

The number of transportation units required for a division of troops with field equipment, rations and forage for three days is by rail 958 passenger and freight cars; by water 12 ships of 20-foot draft like the *Kentuckian* or 22 ships of 16-foot-draft like the *Momus*.

For naval purposes it is necessary here only to invite attention to the very great advantage to be obtained by providing an additional and protected entrance for each of the ports from New York to Norfolk—an advantage which would make impossible an effective blockade of any one of these ports.

From the above it is evident that the construction of the canal would add greatly to the defensive strength of the United States.

The section between Cheaspeake and Delaware Bays is now in use, and its betterment is comparatively inexpensive.

In all of the earlier investigations the principal object in view was to provide the city of Baltimore a direct and safe outlet to the ocean. Naturally, the pressure for the desired outlet has originated largely in Baltimore, and a satisfactory solution of the problem presented demanded that the outlet should be as direct as possible. At the present time, however, an entirely new element has arisen for consideration, which modifies materially the requirements of the case. This is the development of a much broader project to provide an inland waterway from Boston to the southern Atlantic ports. The canal connecting the Chesapeake and Delaware Bays has become merely a link in the whole chain of waterways, and its relation to a single port is no longer the controlling consideration; but it is proper and necessary to give this relation due weight in the selection of the route to be adopted.

THE MOST AVAILABLE ROUTE.

It was the duty of the board to examine all practicable routes and to prepare plans and estimates of the cost along the most available route.

In making this examination the board availed itself of the information heretofore collected and compiled and examined personally all practicable routes formerly suggested as well as some later modifications of the same.

The board held that no route should be adopted that does not enter Delaware River at a point within the protection and control of the fortifications already constucted.

The maintenance of its channel where it enters the Delaware River and Chesapeake Bay presents no serious difficulty.

The cost of a canal by this route will be less than by any other available.

The construction work can be so conducted as to permit the uninterrupted use, toll free, of the canal for commerce as soon as the Government acquires possession.

Objections to this route have been made as follows:

The ridge crossed by the canal is about 100 feet high at its summit, and is composed of strata liable to slips when the banks are saturated with water.

Borings into the strata, which must be cut by the enlarged section for a ship canal, have been alleged to indicate the presence of quicksands.

The northerly position of this route has caused apprehension that ice would interfere with traffic more than upon other routes.

These disadvantages present no insuperable obstacle to the construction of a canal on this route, and similar difficulties will probably be met on any route selected. The many positive advantages possessed by the route are believed to outweigh any probable increase of cost due to the disadvantages alleged, and it is the opinion of the board that the most available route lies substantially along the line of the present Chesapeake & Delaware Canal.

In this connection it is worthy to note that this line was selected for the present canal at a time when primitive methods were employed. The attack with pick and shovel on the ridge at its highest point proves that the engineers who directed the work were convinced that they had selected the line of least resistance. The lapse of years has not altered the physical conditions.

The board of 1894, ordered to determine the most feasible route, reported:

This board determines the most feasible route for the construction of the Chesapeake & Delaware Canal to be the Back Creek route, which is substantially located upon the line of the existing Chesapeake & Delaware Canal.

THE PLAN.

The alignment.—The Delaware City terminus of the existing canal is not well adapted to enlargement. It introduces an objectionable curve in the alignment of the canal about a mile from the entrance, and strikes the Delaware River in a minor channel between the Delaware River inshore and Pea Patch Island. To utilize this entrance would involve the improvement and maintenance of this minor channel, now about 20 feet deep, throughout its entire length; for if a Delaware River approach were provided around the northern end of the island only, vessels of considerable draft issuing from the canal and bound south would be forced to make a long detour, and a similar detour would be made by northbound traffic if an approach around the southern end of the island only were provided. An even more serious objection to the present entrance is found in its direction with respect to the tidal currents in the river and the probability of a consequent shoaling, which, for a sea-level canal, would make the maintenance of the channel under such conditions difficult and costly.

These objections do not apply to a line striking the river at Reedy Point, as shown in the plan accompanying this report.

It is not proposed to abandon entirely the present entrance. By a slight deepening it can be retained for the use of light traffic bound to or from the north, thus relieving the main entrance from the large numbers of small vessels, pleasure craft, etc., that will doubtless use the canal, and at the same time lessening the loss to Delaware City that would be caused by the abandonment of the present entrance.

The new entrance planned by the board has the additional advantage of being well defended by the fortifications at Fort Du Pont and of increasing the strength of the fortifications against a land attack. The retention of the present canal in rear of the fortifications as described above also affords an increase of strength.

From the point of junction of the new entrance and the present canal to Chesapeake City the proposed canal follows closely the line of the existing cut. At Deep Cut a study has been made of the high banks where in the past slips have occurred. Borings were made to determine the strata through which the enlarged channel will run, and a new line was surveyed leaving the canal at Crystal Run and avoiding Deep Cut entirely. Earlier investigations were thought to have disclosed the existence in Deep Cut of water-bearing sands, sometimes described as quicksands, which flowed freely into the boring apparatus and which threatened the canal with serious slips.

The estimates of the board show that a cut on the Crystal Run line would increase the cost of the canal about $1,500,000 over that of the Deep Cut line. In comparing the two routes particular study has been given to those dangers and difficulties which exist on the Deep Cut line and which it had been hoped to avoid by adopting the other.

The only dangers apprehended were those due to unstable material in the banks and to quicksands in the subsoil.

When the present cut was made, hand methods of excavation were employed, and consequently the side slopes were left as steep as they would stand and the excavated material was deposited along the very edges of the cut. In the firmest material this procedure must inevitably produce conditions conducive to slips in the banks. Such slips have been numerous in the past and some of them have been of considerable extent. In recent years, however, the banks appear to have been reasonably stable and permanent.

No conclusive evidence of the presence of quicksand at any point in Deep Cut has been found.[1]

The cross section.—The law under which the board is organized and has conducted its investigations prescribes 25 feet as the maximum depth to be considered. * * *

A large part of the foreign commerce of Baltimore with Canadian and European ports could also use to advantage a canal of this depth.

A depth of 18 feet would permit few of the vessels engaged in this commerce to utilize the canal. The difference in cost of a canal 25 feet deep and one 18 feet deep is $2,400,000 if the sections are proportional, but it is believed that the minimum width regarded as permissible for the deeper canal could be reduced but little for the lesser depth, and not at all if the canal were designed with a view to future deepening to 25 feet.

If the canal were constructed with the smaller section and widened later, the work would involve the loss of all revetments, slopes, and slope protection along one bank, and the excavation of material from an unfavorable position on the surface of the slope. The cost of enlargement would far exceed the increase in cost due to constructing the proper section in the first place.

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[1] Asst. Engineer G. W. T. Miller, who made the borings referred to in the report of 1907 of the Agnus Commission, states that no material was encountered which, in his opinion, could fairly be classed as quicksand; that on account of the manner in which the wash borings were made, it would be practically impossible to distinguish between quicksand and ordinary sand washed up by the pump. Mr. Miller further states that the borings showed practically the same physical condition along the line of the present route and the suggested Sassafras route. For detailed description of physical conditions, attention is invited to the published report of the board (H. Doc. 391, 62d Cong., 2d sess., pp. 90 to 93).

For these reasons the actual saving in first cost of an 18-foot canal as compared with a 25-foot canal is only about $700,000, a sum not sufficient to justify the sacrifice of the benefits expected from the greater depth.

The commission appointed by the President of the United States in 1906, after a careful appraisal of the property of the canal company, recommended that no higher price than $2,514,289.70 be paid.

No betterments have been added since 1887.

In declining to state a price for its property, the company has reiterated its statements made to the above-mentioned commission and the status remains practically unchanged.

The board recommended that no higher price than the above be paid, and if the purchase could not be made for that price or less that condemnation proceedings be instituted.

The board recommended the immediate purchase of the canal as an advantage to the commerce of several States by reason of the increase of traffic due to the abolishment of tolls, which would also effect an immediate saving of over $163,000 annually.

The law under which the board was organized and conducted its investigations prescribed 25 feet as the maximum depth to be considered. The minimum width to permit vessels to move at a speed of 8 to 10 miles per hour and to pass each other safely was taken as 125 feet on the bottom, increasing at all curves. For these dimensions, including broader approaches at both ends up to a width of 600 feet, the estimated cost was $12,424,499.70. For maintenance, the estimate of first cost was $375,400, and for operation, annually, $104,220.

The section is a central link in the chain of waterways proposed between Boston and Beaufort, and it is essential to the construction of any intracoastal waterway connecting New York and Philadelphia with the South.

Many vessels and lives are lost on the coast between Cape Henlopen and Cape Charles. During the five years previous to 1911, among the vessels lost were 32 engaged in coastwise trade which might have used the canal. The aggregated tonnage of these 32 vessels was 22,600, and it was assumed that there was lost with them not less than 12,000 tons of freight, valued together, conservatively, at not less than $500,000, thus giving a value to the canal as a preventive of marine disaster of not less than $100,000 per year. With the 32 vessels mentioned, there were 49 lives lost, an average of about 10 a year.

According to responses to request for information, the following existing commerce could and would use a free canal to advantage notwithstanding the fact that many asked for information failed to reply:

From southern points, 1,107,414 tons, and additional freight valued at $375,000, but no tonnage given; from northern points, 1,430,208 tons, and additional freight (no tonnage given) valued at $195,000. The total for both directions is 2,537,622 tons, valued at $14,170,289.

The average annual shipments through the present canal for the five years previous to 1911 amounted to 716,644 tons, on which

$163,151.33 tolls were collected. On the same basis a free canal effect a saving in tolls on the above tonnage of not less than $577,309. Other items of saving were investigated and the value of a free canal affording 25 feet navigation may be stated as follows:

Annual saving in—	
Vessels and cargoes from shipwreck	$100,000
Tolls	577,809
Freight	551,933
Time of coastwise traffic steamers only	136,500
Foreign trade	48,000
Total	1,414,242

These figures are based upon the commerce actually found to exist to-day.

CONCLUSIONS OF SPECIAL BOARD.

Delaware River-Chesapeake Bay section.—All practicable routes in this section were examined, and the Back Creek route, along the line of the present Chesapeake & Delaware Canal, was selected and surveyed as the most available. A plan has been prepared for a canal 25 feet deep and with a bottom width of 125 feet, and such a canal along this route and with these dimensions is recommended. The estimated cost of construction is $9,910,210.

The board is of the opinion that the Chesapeake & Delaware Canal property should be acquired by the United States by purchase. The cost has heretofore been estimated at $2,514,290. (See S. Doc. No. 215, 59th Cong., 2d sess.) No definite proposition has been received by this board for the sale of the canal. The purchase price is in addition to the costruction cost stated above.

The importance of this section is deemed sufficient to warrant the immediate purchase of the existing canal and the inception of work for its enlargement as soon as funds can be made available.

(B)

QUOTATIONS FROM REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS.

DELAWARE RIVER-CHESAPEAKE BAY SECTION.

The construction of a ship canal connecting the Delaware River and Chesapeake Bay has heretofore been considered by the General Government as an independent proposition. Communication between these two bodies of water for light-draft boats is now afforded by the Chesapeake & Delaware Canal, a private waterway charging tolls. Due to its restricted dimensions and the tolls charged for its use, the commerce through it is not proportional to that of the bodies of water which it connects.

The present terminus of the canal at Delaware City is not well adapted to enlargement, and the plan presented provides for a new entrance to Reedy Point, though retaining the Delaware City arm as a branch canal for the use of light-draft boats. From the point of the new entrance and the present canal the proposed waterway follows closely the line of the existing cut. *The law ordering this investigation prescribes 25 feet as the maximum depth to be considered.* The special board states that this depth would permit nearly all of the coastwise water-borne traffic now plying between Baltimore and ports of the northern Atlantic coast, and also a large part of the foreign commerce of Baltimore with Canadian and European ports to use the canal advantageously. It is stated that a depth of 18 feet would permit few of these vessels to utilize the canal. The actual saving in first cost of the 18-foot canal as compared with the 25-foot canal is placed at about $700,000, and as this saving is not regarded as sufficient to justify the sacrifice of the benefits expected from the greater depth, final estimates are submitted only for the larger project. In considering the most suitable type of canal, the special board found that a tide-level canal would be cheaper to construct, operate, and maintain than a lock canal, on account of the large and expensive locks that would be required for the character of commerce involved and the necessity of constructing a pumping plant to supply water to the summit level.

No damage to banks or interference with navigation is apprehended on account of tidal currents, and it is thought that a guard lock will not be required. The estimates are as follows:

Tide-level canal 25 feet deep at mean low water, 125 feet bottom width.	$9, 910, 210. 00
Estimated value of the existing Chesapeake & Delaware Canal......	2, 514, 289. 70
	12, 424, 499. 70
Initial cost of plant for maintenance....................................	375, 400. 00
Annual cost of maintenance...	104, 220. 00

The Board of Engineers for Rivers and Harbors concurs with the special board as to the desirability of a free waterway connecting Delaware River and Chesapeake Bay. Aside from its future value as a link in a through waterway connecting northern and southern ports it will be of great value to existing commerce, and will yield immediate benefits. The board therefore recommends the purchase of the Chesapeake & Delaware Canal at a price not exceeding $2,514,289.70, or its acquirement by condemnation proceedings if necessary.

QUOTATIONS FROM REPORT OF THE CHIEF OF ENGINEERS.

The immediate purchase of the existing Chesapeake & Delaware Canal, which connects Chesapeake Bay with the Delaware River, at an estimated cost of $2,514,290, and its progressive change to a tide-level canal of 25 feet depth at mean low water at a further cost of $9,910,210, making a total initial cost of $12,424,500, of which $3,000,000 should be made available immediately, and the rest be covered by authorizations with a view to final completion, following the general line of improvement outlined by the special board.[1] This canal forms an essential part of a through inland waterway connecting New York and Philadelphia with the South. Its purchase and the abolishment of tolls will produce at once a considerable saving in transportation expenses and should result in an early and substantial increase of traffic with advantages to the commerce of several States. This canal is at present 10 feet deep and of the lock type, the locks being 24 feet wide by 220 feet long. The change should be made gradually and in such way as to interfere as little as possible with existing traffic; and 12 feet depth or thereabout should be secured throughout the canal before the deepening is carried to 25 feet. While the above recommendation for immediate purchase of this canal and the enlargement of this section to about 12 feet depth is a definite recommendation, the method of deepening to 25 feet and the rapidity of work for the first and subsequent deepening must depend considerably upon the cost of the intermediate steps, and further estimates for such portions of the work will therefore be called for and submitted later with final recommendation for this section.

SUPPLEMENTARY REPORT OF 1912 AND 1913.

Legal authority: River and harbor act approved March 3, 1909.

Reported upon by (A) a special board of engineer officers consisting of Col. W. M. Black, Col. Frederic V. Abbot, Lieut Col. J. C. Sanford, Lieut. Col. Mason M. Patrick, and Maj. R. R. Raymond; (B) by the Board of Engineers for Rivers and Harbors, William T. Rossell, Colonel, Corps of Engineers, senior member of the board; (C) and by Brig. Gen. W. H. Bixby, Chief of Engineers, United States Army.

Dates of reports: (A) February 14, 1912; (B) July 22, 1912; (C) August 9, 1913.

Reports printed in House Document 196, Sixty-third Congress, first session.

The special board in this report apparently considered the question from the commercial side only, and did not express any views concerning the naval or military advantages. This method of viewing the question was followed by both the reviewing Board of Engineers for Rivers and Harbors and the Chief of Engineers.

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[1] Attention is invited to the fact that this item of law precluded recommendation of any depth greater than 25 feet.

(A)

Quotations from report of the special board, February 14, 1912:

The board submitted the following table of comparative cost of different types of canal:

Delaware River—Chesapeake Bay section.

	Sea level.		Two locks.	Three locks.
	Width, 125 feet; depth, 25 feet.	Width, 90 feet; depth, 12 feet.	Width, 90 feet; depth, 12 feet.	Width, 90 feet; depth, 12 feet.
Cost of construction, plus 10 per cent	$12,424,500	$7,902,007	$7,802,914	$7,767,380
Annual interest at 3 per cent on first cost of construction	372,735	237,060	234,117	233,021
Cost of annual maintenance	104,220	104,220	306,420	310,020
Annual expenditure	476,955	341,280	540,537	543,041
Comparative expenditure capitalized at 3 per cent per annum, taking cost of a sea-level canal 125 feet wide and 25 feet deep as 100 per cent	100	72	113	120
Time required for a boat with a draft of 10 feet and a beam of 36 feet to pass through the canal, calculated from formula (hours)	1.2	2.9	3.9	4.4
Time required for a boat with a draft of 16 feet and a beam of 40 feet to pass through the canal from formula (hours)	1.3	Impassable.	Impassable.	Impassable.
Time required for a boat with a draft of 20 feet and a beam of 45 feet to pass through the canal from formula (hours)	1.7	Impassable.	Impassable.	Impassable.

The commerce utilizing the intracoastal waterway will be—

(1) Minor traffic between neighboring points on the canal.

(2) Strictly inland through commerce.

(3) Coastwise commerce seeking a safe route parallel to the coast.

(4) Ocean commerce in partially laden or empty vessels shifting from port to port to discharge or take on cargo.

(5) And for the Delaware River-Chesapeake Bay section, ocean commerce of the port of Baltimore.

Since a sea-level canal is preferable to a lock canal from every point of view, for the Delaware River-Chesapeake Bay section there would be little gained by deepening the present lock canal to 12 feet as an intermediate step toward a 25-foot sea-level canal. Special barges for a 12-foot depth would not be built for temporary use. The existing locks will accommodate traffic during enlargement of the canal and the change to sea level.

Therefore the sea-level canal 12 feet deep should be the first step.

The board believes that as outlined above the work can be carried on progressively and recommends that early provision be made for its inception and completion to a depth of 25 feet.[1]

(B)

Quotations from report of the Board of Engineers for Rivers and Harbors, July 22, 1912.

The board concurs with the special board as to the desirability of a free waterway connecting Delaware River and Chesapeake Bay. Aside from its future value as a link in a through waterway connecting northern and southern ports, it will be of great value to existing commerce and will yield immediate benefits. The board therefore recommends the purchase of the Chesapeake and Delaware Canal, at a price not exceeding $2,514,289.70, or its acquirement by condemnation proceedings, if necessary.

Referring to the Delaware River-Chesapeake Bay section, the board concurs in the views of the special board that the Chesapeake and Delaware Canal should be enlarged to a sea-level canal 12 feet deep and 90 feet wide at bottom, but it does not believe that the further enlargement to a depth of 25 feet should be undertaken until there has been an opportunity to observe the commercial changes resulting from the freeing of this canal and its first enlargement, and a new investigation has been made to determine the advisability of any further modification that may be suggested by the changed conditions. The board, therefore, does not recommend the 25-foot depth at the present time, but reports that in its opinion it is advisable to purchase the Delaware and Chesapeake Canal and enlarge it to a sea-level 12 feet deep and 90 feet wide at bottom at a total estimated cost of $7,902,007. The initial appropriation should be sufficient to buy the existing canal, whose value is estimated at $2,514,289.70.

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[1] The law directing this examination and report specified 25 feet as the maximum depth to be reported upon.

(C)

Quotations from report of Brig. Gen. W. H. Bixby, Chief of Engineers, United States Army, August 9, 1913:

Regarding the further improvement of the already recommended waterway between Chesapeake Bay and Delaware Bay, the Chief of Engineers concurs with both the special board and Board of Engineers for Rivers and Harbors in the opinion that it is advisable for the United States to buy the Chesapeake and Delaware Canal at a cost to the United States not exceeding $2,514,290 and to then enlarge it to a sea-level canal of 12 feet depth and 90 feet bottom width, with the least interference practicable to existing traffic, following in general the methods indicated by the special board, at a cost which, including the first year's maintenance amounts in round numbers to $8,000,000, of which $3,000,000 should be made available by the first appropriation, and economical work will then require subsequent appropriations of from $500,000 to $1,000,000 per year.

The Chief of Engineers concurs with the Board of Engineers for Rivers and Harbors in the view that further deepening to 25 feet of the Chesapeake and Delaware Canal at an extra cost of $4,500,000 should await further observation as to the commercial changes resulting from the first increase in canal depth and especially the release from canal tolls.

APPENDIX C.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF STAFF,
Washington, February 27, 1915.

Memorandum for the Chief of Staff.

Subject: Military advantages of the Chesapeake & Delaware Canal.

1. There is returned herewith a memorandum with attached papers on the above subject, dated February 24, 1915, from the Secretary of War to the Chief of Staff, wherein three questions are submitted:

(*a*) The military advantage, if any, of the existence of this canal.

(*b*) Whether a canal along this line would be of any military advantage, and if so, what?

(*c*) What character and size the canal would have to be in order to be of any advantage?

These questions apparently refer both to the present and contemplated canal along this line.

2. In answer to 1 (*a*), it is believed that the existing canal has some value as it exists to-day as an obstacle to the advance of a hostile expedition landing on the west bank of Delaware Bay and advancing against Wilmington and Philadelphia. The fine, undefended harbor at Lewes, Del., makes such a landing a probability. The canal, especially at the locks, is so narrow, only 24 feet at the locks, as to form an obstacle not very formidable. The canal is too small for the passage of submarines or other naval craft that would be used for preventing the landing of troops from hostile transports, and too small and obstructed by locks for rapid transport of troops and materiel from one bay to the other.

3. As to 1 (*b*), a sea-level canal along this same line would be of very great military importance from the following points of view:

(*a*) For the movement of submarines and other craft that must constitute an important part of our coast-defense system.

(*b*) As forming an almost impassable obstacle to the passage of troops advancing to attack Wilmington or Philadelphia from the peninsula between Delaware and Chesapeake Bays.

(*c*) For the transport of men and materiel of the coast artillery and the coast-artillery supports from one bay to the other.

4. The first of the points enumerated in paragraph 3 is a military one, because submarines and other small craft are believed to be at present an integral part of the seacoast defense, for use not only against naval attack on the harbors, but in a still more important sense against transports attempting to land a hostile force on our shores in case of the defeat of our Navy. Seacoast defenses reach no farther than the range of their guns, and it is impossible to distribute mobile army troops at all possible landing places to prevent the landing of troops without so frittering away the army in small detachments as to render it almost impossible to collect them for united action. A canal such as proposed would allow the whole force

of submarines, etc., to be held in one of the two bays and used with equal efficiency in either. Without the canal the force of submarines, etc., must be divided between the two bays and to reinforce one another they must attempt a passage by the outside, a distance of over 200 miles, as against about 15 miles by the canal.

A canal along this line and one from Delaware Bay to New York Harbor would make a landing of hostile troops almost impossible between Narragansett Bay and Chesapeake Bay, and the construction of this canal is an important step toward the accomplishment of this result.

5. As an obstacle and a part of the land defense of Wilmington and Philadelphia a canal suited for other commercial and naval purposes would be of great importance. Defended by a few troops and small gunboats, such an obstacle (of the size recommended below) would hardly be crossed, and it is not believed that it would be attempted.

6. As a means of transport it has a measure of value for the easy transportation of men and materiel between the fortifications of Delaware Bay and of Baltimore.

7. As to 1 (*c*), the objects set forth in paragraph 3 above can be obtained by a sea-level canal having a depth of 18 feet at mean low water and a bottom width of about 150 feet. While tides of 6 feet to 10 feet prevail in the waters at the ends of the canal, investigation has shown that guard locks will not be necessary and that an open canal will be entirely feasible.

M. M. MACOMB,
Brigadier General, Chief of War College Division.

I concur.

TASKER H. BLISS,
Brigadier General, U. S. Army,
Acting Chief of Staff.

I concur.

LINDLEY M. GARRISON,
Secretary of War.

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64th Congress }
1st Session }
SENATE
{ Document
{ No. 17

JOHN WARWICK DANIEL

ADDRESS

DELIVERED AT THE

UNVEILING OF EZEKIEL'S STATUE OF
SENATOR DANIEL, AT LYNCHBURG, VA.
MAY 26, 1915

BY

WILLIAM M. THORNTON

PRESENTED BY MR. MARTIN
December 13, 1915.—Ordered to be printed

WASHINGTON
GOVERNMENT PRINTING OFFICE
1915

JOHN WARWICK DANIEL.*

BY WILLIAM M. THORNTON.

We are met to-day to do honor to the memory of a great Virginian. Born and reared in this city, he made it always his home—the center of his deepest affection, the focus of his strongest activities. Here he grew to manhood; here he lived and loved and labored; here he died; and here at last he was buried. It is meet and right that here in Lynchburg should be reared the noble bronze which shall tell to coming ages the name and the fame of John Warwick Daniel. Soldier and orator, jurist and statesman, lawgiver and Senator, with a loyalty rooted like Virginia's mountains in the Virginian soil, with a patriotism broad as our Continent, this he was to all his countrymen, to all Americans. To us Virginians, to you, men and women of Lynchburg, he was more. This bronze effigy fitly figures the stately dignity and courtesy of the man, his high political seriousness, the austere beauty of a countenance like that of some Roman patrician of the Augustan age. It tells nothing of the heart which beat so warmly in that dauntless breast; nothing of the magnetic gaze which seemed to draw other hearts into his allegiance; nothing of the mellow harmonies of that magic voice which seemed to claim us all as his friends; nothing of the proud affection which welcomed all Virginians as his brothers. Let us spend a few short minutes in saying concerning this great Virginian some of the things which no bronze can ever say.

FIRST PERIOD.

John Warwick Daniel was born the 5th of September, 1842; he died 29th of June, 1910. His 68 years of life, so rich in events, in duties bravely done, in responsibilities nobly borne, in honors worthily won and generously given, fall naturally into three well-marked periods: From his cradle to Appomattox, from Appomattox to Washington, from Washington to America's great hall of fame. Let me sketch a few pictures for you from the first of these periods.

The first picture which comes before us shows a mother, beautiful and young and tender, bending in adoration over the slumber of her first-born child. It is Sarah Anne Warwick and the child is John Warwick Daniel. Too soon this picture fades from our view. The fragile young mother is called away from earth to heaven and John Daniel and his infant sister pass to the care of their grandparents, inheriting, it may be, a love all the richer for their orphan state.

Daniel himself paints for us the next picture in the series, a portrait of John Warwick, his grandfather, in whose affluent home his boyhood was passed.

> A nobler man never lived—hospitable, gentle, calm, self-poised—a gentleman in honor, in manners, in innate refinement. A pure and lofty soul, he seemed

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* Reprinted from the University of Virginia Alumni Bulletin for July, 1915.

to me to be everything that a man could be to be respected and loved. Successful from his youth in business, he was rich and generous without pretension or pride. Yet when the end of the Civil War prostrated his fortune and he became old and almost blind his easy dignity lost no feature of its serene composure, and out of his true heart came no complaint of man or fortune.

As we view this portrait we seem to recognize the source of that peculiar charm which Daniel's colleague, Senator Lodge, so beautifully characterized, "that grave courtesy, which never wavered; those manners, serious, gracious, elaborate, if you please, but full of kindness and thought for others, which can never really grow old or pass out of fashion," even in our hurried, hustling time.

The winged years sweep swiftly past and soon a fresh picture greets our view. We see on the rostrum of the Lynchburg Military College a handsome youth of 16 years. His inborn tastes for debate and declamation have already declared themselves, and John Daniel has been selected to represent his class. The world was still thrilling with the blood-stained story of Balaklava when Daniel rose to his feet and with impassioned eloquence recited to his auditors a poem new to most of them—Tennyson's immortal "Charge of the Light Brigade."

"Forward the Light Brigade!"
Was there a man dismayed?
Not tho' the soldier knew
Some one had blundered—
Their's not to make reply;
Their's not to reason why;
Their's but to do and die;
Into the Valley of Death
Rode the six hundred.

Already the souls of Virginians were stirred by somber premonitions, and it is easy to realize in fancy how these splendid stanzas, hot from the heart of this beautiful young orator, may have pealed into their ears vague prophecies of the coming storm—of Jackson and the Stonewall Brigade, of Lee and the Army of Northern Virginia.

Two more years of peace were vouchsafed our country, and in these years Daniel gained new and priceless visions of life and letters. From 1825 to 1828 the great Latinist, George Long, had labored at the University of Virginia to found a school of the Classical Languages and Literatures. When he resigned his chair to return to England his mantle fell on the shoulders of a young Virginian, the most brilliant of his pupils, Gessner Harrison. Thirty years of service for his alma mater had left Gessner Harrison poor in purse but rich in scholarship, in experience, in the love of his old students, in the esteem of his colleagues, in the admiration of men of learning, in the confidence of Virginians and of the whole South. His extended knowledge of the educational situation in the Southern States assured him that a great work awaited the man who should establish a high-class preparatory academy for students desirous of adequate training for a course of university studies. In 1859 he resigned his professorship and organized such an academy, occupying for the first year rented quarters at Locust Grove, near Greenwood, in Albemarle County, and then removing to a purchased estate called Belmont, in Nelson County. Daniel, with his high ambitions, was at once drawn to this man, the greatest classical master of his generation in America. Entering the new academy at Locust

Grove and following the headmaster to Belmont, he came under the inspiration of a teacher of rare sagacity and power, a man who added the graces of the Christian to the culture of the scholar. We have no means after so many troubled years of evaluating the specific influences of this school upon Daniel's intellectual tastes and modes of thought. One of the schoolboys of that day writes thus pleasantly about him:

> John Daniel's principal claim to distinction at school was his wonderful dexterity in the game of bandy. He was by all odds the best player in the school. His other big activity was in the debating society, and at the end of the session he was the orator, John Selden being the essayist. Daniel had the same quality then as subsequently of carrying away his audience by his rhetoric, his splendid musical voice, and his wonderfully handsome features. He was already an accomplished elocutionist.

Another schoolfellow, one of his more intimate friends, adds to the little picture some very telling strokes:

> John Daniel was a dignified youth, but full of comradery. Yet he never allowed this to interfere with his work, being a good and close student, already ambitious to fit himself for a great career as a lawyer and orator. There was never a squarer boy; his mere presence was a check to ribaldry and blackguardism. He had the divine gift of being fair to his opponents, but he demanded a return in kind. If he had not become a great man and, better still, a greatly loved man, all schoolboy signs would have failed. I loved him then and now revere his memory.

There you have him before you, a square boy, a high-minded boy, an ambitious boy, a gifted boy—ready to ripen under the fervid heat and strife of war into a valiant soldier and a true patriot.

The fateful spring of 1861 saw the storm of war burst over Virginia. Daniel withdrew from the academy, returned to his home in Lynchburg, and enlisted as a private in the Wise Troop of Cavalry, then recruiting in his native city. His knowledge of tactics gained in the Lynchburg Military College soon brought him a commission. On the 8th of May, 1861, he was appointed second lieutenant in the Provisional Army of Virginia, was assigned to duty with Company C, Twenty-seventh Virginia Infantry, the nucleus of the famous Stonewall Brigade, and was ordered to report to Harpers Ferry to Lieut. Col. Thomas J. Jackson. There he spent several busy weeks as drillmaster.

Our next picture of him comes from the historic battle ground of Bull Run. Already he had been hit twice. Once a flying fragment from an exploded shell struck his head, but his cap saved him from serious hurt. Again a spent bullet struck him full in the breast and felled him to the ground; this time it was the metal button on his coat which saved him. Presently, in a fierce charge, the regimental color sergeant was shot down. Daniel sprang to his side, seized the standard, waved it aloft, and with it pressed forward until relieved by command. Then a rifle bullet found him, and, shot through the left hip, he fell to the earth. Using two muskets as crutches he limped from the field, and was later borne away and sent to his home in Lynchburg, where for several weeks he remained on a bed of fevered suffering.

Another picture comes to us. His gallant conduct at Bull Run secured him well-deserved promotion. He is now first lieutenant and adjutant of his regiment, Eleventh Virginia Infantry. Lee had outgeneraled McClellan, crossed the Potomac, and advanced into Maryland. With his wonted audacity he had divided his little army, although in the presence of a superior force of the enemy, had sent Jackson back to reduce Harpers Ferry, and with Longstreet was awaiting Jackson's return. His purpose was first to crush McClellan by the simultaneous impact of his two victorious corps and then, marching upon Washington, dictate an honorable peace beneath the Dome of the National Capitol. Suddenly, after nightfall of the 13th of September, 1862, the news comes that by some fatal error on the part of Lee's staff the copy of his general orders sent to D. H. Hill had been duplicated; that one of the two copies had been lost at Frederick, found by a Union civilian, and placed in McClellan's hands.

The emergency was frightful. If McClelland had been capable of swift and vigorous action it would have been easy for him to occupy the mountain passes, thrust his army between the divided corps of Jackson and Longstreet, and annihilate Lee in detail. Grey troops were hurried back to Cramptons and Turners Gaps, and to the latter point Daniel's regiment was sent. The Federal assault upon this position began at 7 o'clock on the morning of the 14th of September, 1862—one Confederate brigade defending the pass against 18 Federal brigades. The southerners were pressed slowly back and back. The general was killed; the men were utterly exhausted. But before their adversaries could utilize their advantage Confederate reinforcements came up, darkness fell, and the day was saved.

It is in the midst of this desperate and unequal conflict that we get our new picture of Daniel. He stands in line of battle guarding the mountain pass and, as he shifts his pistol from one hand to the other, the bullet from a Federal rifle perforates the hand that grasps the weapon and flattens itself against the pistol stock. Daniel slipped his unwounded hand into his pocket, drew out and opened his pocket knife, then coolly slit the skin of his hand and picked the bullet out. When the days of peace returned he had it mounted as a watch charm, and wore it for a souvenir of this heroic day. Luckily no bones were broken, but the wound was too serious to be tampered with, and Daniel was again perforce off duty for many weeks.

One more picture—the date is March, 1863. Our boy soldier is a major now—major at 20 in the Army of Northern Virginia, assistant adjutant general, and a member of Gen. Early's staff. No Lynchburger needs to be told who Jubal Early was; dour old fighter, with his grim air and his rasping tongue, and behind it all a heart compact of pure courage and kindliness and honor and truth. Daniel himself has sketched him for us—"a man of peace before the war, a man of battles during the war, a hero in fidelity and fortitudes after the war, and the very incarnation of its glorious memories." They were both your fellow townsmen and you can picture them side by side—the bearded old warrior and the young staff officer with his classic face and his patrician air. Abrupt, rough, peremptory, formidable Early whips out one of his usual oaths and orders Daniel upon some urgent duty. The young adjutant drew himself to attention, looked the old general squarely in the eye, and with perfect courtesy and calm answered—

> General, when you address me as one gentleman should address another, I will obey your orders; but not otherwise.

The bullets of Bull Run and Boonsboro were nothing to this. But Early was too true a man, too good a soldier, not to see his own fault and make swift amends. The relation of general and staff officer grew into a devoted friendship, and in that splendid eulogy pronounced by Daniel above Early's open grave we hear the voice not of a subordinate recounting the exploits of his honored chieftain; not of a comrade, sharer of ten thousand glorious memories; but the voice of a loyal and loving son, who heaps laurels and rains tears upon his dead father's beloved form.

We must hurry on down the long gallery of these heroic scenes; time presses and I can make room for but one more picture from this period of Daniel's life. We pass Fredericksburg, Winchester, Gettysburg; splendid settings as they were for the valorous deeds of Early and Early's Division, they may not detain us. The time is the springtide of 1864; the place the Wilderness of Spottsylvania. Amid these dim thickets, where the battle smoke and blood reek of Chancellorsville seemed still to linger, Lee and his immortal Army of Northern Virginia were at grips with Grant, the most formidable of all his adversaries. It was the campaign in which Lee's gaunt grey line faced by overwhelming forces killed and disabled more of their enemies than the total of their own numbers. Here on the 6th of May, 1864, Daniel saw a southern colonel shot dead and his regiment thrown into confusion. Prompt action was needed; Daniel spurred his horse to the front, reformed the broken lines under a terrific fire, and was about to lead them again into the fight. Just at this critical moment a hostile bullet struck him down; the dauntless young Virginian dropped from his saddle, his thigh bone shattered and the femoral artery severed by the ball. He dragged himself for shelter behind a fallen log and there, with no surgeon in reach, he found himself hopeless of rescue and fast bleeding to death. With rare presence of mind he unwound from his waist the silken sash that showed his military rank and improvised a tourniquet for the injured limb. His life was thus saved, but his soldier's career was closed. No more campaigns, no more battles, no more promotions; but out of those heroic days he brought what he deemed the most honorable of all his titles—major in the Army of Northern Virginia. Then Appomattox came and the first period of Daniel's life was ended.

SECOND PERIOD.

Peace once more; arms stacked and battle flags furled; Virginia one great impoverished, hoof-beaten desert; but still men called it peace! The veterans of the Army of Northern Virginia were summoned to take up life anew—to mould the shattered fragments again into strength and wholeness. A few, desperate of the future, sank into despondency and inaction; that was not John Daniel's way. A few abandoned Virginia and made for themselves new lives in sister States or foreign lands; neither was that John Daniel's way. Lee had declared himself resolute to "abide the fortunes and share the fate of my own people."

And Daniel thought like Lee. Inherited aptitudes and family traditions marked out for Daniel his one sure path. That path he followed for his country's great good and his own great glory.

John Daniel was the son of an able lawyer and distinguished judge. William Daniel, jr., after a brilliant career at the bar, revealing lofty standards of character and rare abilities, was elected in 1846, at the age of 40 years, to a seat upon Virginia's court of last resort, the Supreme Court of Appeals, and there served his State with diligence and distinction until in May, 1865, the Federal President abolished the self-organized government of the Commonwealth and set up Francis H. Pierpont as provisional governor of Virginia.

John Daniel was also the grandson of a great lawyer. William Daniel, sr., was a man of distinction and power, the friend and associate of James Madison, one of the judges of the Circuit Court of Virginia, and as such a member of the General Court, which until 1851 exercised the functions of our present Court of Appeals. His luminous and vigorous opinions are still quoted, and his name stands high in the judicial history of Virginia for clear vision and incorruptible integrity.

With such forbears John Daniel seemed predestinated for the profession of the lawyer.

By the autumn of 1865 the University of Virginia had been rehabilitated out of the private means of its faculty, and on the 1st of October it was again opened for students. More than two hundred men presented themselves for admission, most of them Confederate veterans, and among these came John Daniel, limping on his crutch. The head of the law school of that day was John B. Minor, the man of whom Daniel said in after years—

> I do not believe his superior as a law teacher ever existed. Patience, prudence, and punctuality; concentration and continuous attention to the business in hand; infinite tact and painstaking; sweetness of temper, mild and winning manner, unfailing courtesy and consideration, and modesty withal—with what long and laborious fidelity has he exercised these virtues.

Such was the man at whose feet John Daniel sat during the session of 1865–66. The methods of instruction developed by Prof. Minor exerted a powerful influence on Daniel's professional life. I am told by competent authority that his own writings are penetrated through and through with the high philosophy of jurisprudence, and one of his dictums was the simple summary of his old teacher's practice:

> Take care of the principles and the cases will take care of themselves.

In the fall of 1866 John Daniel entered upon the practice of the law in partnership with his father, who survived until 1873. He was in the prime of his intellectual powers, being only 24 years old; and although his wounds never ceased to ache, they had not then impaired his general health or abated his natural vigor of body or of mind. He was endowed by nature with rare eloquence, beautiful features, a youthful figure of slenderness and grace, a melodious voice. dramatic action, and that inward fire of regulated passion which radiates heat through the eye, the countenance, the gesture of the genuine orator and kindles into flame the emotion of his audience. The influence of good teachers, of a cultured home, of a social order not oblivious of the things of the mind, not yet infected with the virus of materialistic greed, had taught him to know books and to love them, had given him fellowship with those who live the life of the spirit. The experience of four years of war, of camp and march, of tented field and battle line, had taught him to know men and to love them, had given him followship with those that tread patiently the dusty highway of our daily life. Fresh from the teachings of a man whom he described as among the "masters of him who seeks himself to master the jurisprudence of the English-speaking family," and penetrated with the lofty conceptions of legal ethics illustrated in the lives of his own progenitors he entered upon the profession of his own choice with those exalted ideals which touched to noblest issues the conduct of his entire public career. Listen for a minute to his creed:

> The great lawyers, whether at the bar or on the bench, have been the men who stood for great moral principles and impressed them into the spirit of the law. The law, indeed, is the public conscience, uttered as the public will, and sanctioned by the public power. It deals with rights in order to defend and preserve them. It deals with wrongs in order to repair or prevent them. It ends in justice, and justice means peace and honor.

It is Daniel's highest distinction that his life, both professional and public, conformed to this exalted creed. Not without insight did his great colleague, Senator Root, of New York, pay to his character this eloquent tribute:

> Above all the men whom I have ever known he created an atmosphere which lifted up those about him to the high plane of his own noble purpose.

One more thing must be said of Daniel; despite his affluent eloquence he was an indefatigable, a prodigious worker. Too many men endowed with gifts like his, facile and fluent speakers, trust to their gift and neglect that arduous toil, that profound study, which can alone give to their utterances permanence and value. Into this error Daniel never fell. He bestowed upon his cases before the courts that detailed analysis and searching investigation which made him master of all their complexities and rendered him well-nigh irresistible, whether as advocate or jurist. He prepared himself for his debates in the Senate with the same scrupulous care, and with the same deep and prolonged meditation; and the result is that his orations before that great body are documents not for to-day only but for all time.

> "He did not speak on many subjects," said Senator Lodge. "He was not an incessant talker. But upon any topic which engaged his attention he spoke copiously and well, and never failed to show that he had thought much and independently upon the questions involved. He liked large issues because they offered the widest opportunity for speculation as to causes and for visions of the future. This reach of mind made him an American in the largest sense, and showed clearly in that note of intense patriotism which sounded so strongly in his formal addresses."

Only such an assiduous worker as Daniel could have found time in the thick of a large and growing practice for the composition of the two works which he added to the literature of his profession. The first of these on the "Law of Attachments under the Code of Virginia," published in 1869, less than three years after his entrance upon the practice, while little more than a useful compilation, met a genuine professional need and has ever since been constantly used as a standard authority before the Virginia courts. The second work, a masterly treatise on "Negotiable Instruments," published in 1876, was the fruit of eight years of arduous and unassisted labor. Daniel went back in his studies to the original authorities and the records of the courts, pursuing his researches in the great law libraries not of Virginia only, but of the other States of the Union as well. The work is ranked by competent jurists among the few great philosophic dissertations on the law contributed by America to legal literature. It has passed through five editions and remains to-day the great exposition of its theme—without an equal, without even a rival. Men who know Daniel by this book only regret that he abandoned the law for the seductions of politics, and believe that if he had been faithful to his first mistress his fame as a jurist would have surpassed his renown as a Senator.

It was not to be expected, however, that a man with Daniel's forensic powers, living in an epoch when all the defenses of civilization in the South seemed to be threatened, summoned by his fellow citizens to lead them in a moral war for social and political independence, could withhold his hand. He served in the House of Delegates of Virginia from 1869 to 1872 and in the State Senate from 1874 to 1881. The problem of the readjustment of the State debt had by that time become the vital problem of Virginia politics. The readjusters among the Democrats, making common cause with the Republicans, promulgated a plan for the forcible scaling down of the bonded debt of Virginia, and selected as their candidate for governor a Virginian of ancient lineage, brilliant talents, and aggressive eloquence—William E. Cameron, of Petersburg, Va. The regular Democrats turned to Daniel, who under the compulsion of a profound sense of duty accepted the leadership of a forlorn hope. The campaign which followed was the most thrilling in the political history of Virginia. The abiest men in the Commonwealth threw themselves heart and soul into the struggle, and Daniel led his forces with knightly courtesy and magnetic eloquence. Men crowded in thousands around the platforms from which he spoke, and hung entranced upon his golden periods. He was no match for Cameron in the rough and tumble contests of the stump, nor did he attempt to meet his keen and aggressive adversary on the low plane of sophistical argument and equivocal honesty. Daniel lifted the debate into the high air of spotless honor and stainless rectitude, and so conducted it as to win not the votes of his countrymen in the pending election but the deathless allegiance of their consciences and their souls. The result of the conflict is known to all men; Cameron became the governor of Virginia; Daniel became the leader and commander of the Virginians. From that day forward there was no office of the Commonwealth—whether of trust, or honor, or emolument—which John Daniel could not have had for the asking. From that day forward there was no platform in Virginia which the "Lame Lion of Lynchburg" could tread without evoking a storm of loving applause.

Even before the end of Cameron's term Daniel's reward came to him. He was elected to Congress in 1884 and served in the House of Representatives from 1885 to 1887. In 1886 he was promoted to the United States Senate and was reelected in 1892, in 1898, in 1904, and last in 1910, the year of his death, he was chosen by unanimous vote for a fifth term of six years. When he died he was the ranking Democratic member of the Senate, and in that august body there were only four men who could show a longer period of continuous service. No other Virginian in all history had ever approached this record. What State has ever more richly recompensed the defeated advocate of a lost cause? It is pleasant to record here a brief extract from the beautiful eulogy which appeared in the Norfolk Virginian the morning after Daniel's death, and to know that this just and eloquent tribute came from the pen of his old-time adversary, ex-Gov. William E. Cameron:

> Daniel's brilliant record as a soldier, his commanding figure and classic face, his mellowness of tongue and grace of gesture, and a gift of oratory which

> lacked no essential quality of natural grace or cultured finish—all these bespoke for him initial popularity; but neither one nor all of these pleasing attributes would have sufficed to establish or protract his primacy in the public heart through the trying political vicissitudes of so many eventful years had he been wanting in those elements of character that owe nothing to chance and yield nothing to change—courage unfaltering, truth unquestioned, honor beyond taint or temptation, and a civic conscience as sensitive as that which guided and guarded the conduct of the private gentleman.

Words like these are no less honorable to him who writes than to him of whom they are written. It was Daniel's merit to accept defeat without rancor. It was Cameron's distinction to recognize the essential greatness and nobility of his adversary.

THIRD PERIOD.

Twenty years of arduous professional labor had done much to prepare Daniel for the wider field of action upon which he was now to enter. His knowledge of law, or history, of politics. of government had been enriched by wide reading and profound meditation. The youthful exuberance of his rhetoric showed already marks of the pruning knife, and his orations began to approach that mold of monumental dignity and beauty which arrested attention and won adherents even in the Senate of the United States. I fancy that John Daniel would have named Thomas Jefferson as the greatest American statesman; certainly his own political instincts and ideals were largely those which Jefferson had caused to prevail. Like Jefferson, he trusted the people of his country, because by close intimacy and wide experience he had found them worthy of trust and believed them also worthy of freedom and political power. His abiding faith in the honesty of his fellow citizens, his rooted belief in their common sense, his trust in the appeal to the educated reason of the voters, his assurance that human society is capable of indefinite advancement in virtue and uprightness, his firm conviction that majorities rule not by might alone but of right as well, made of Thomas Jefferson the typical American and the like qualities made of John Daniel the typical Jeffersonian Democrat.

As his colleagues said of Daniel, he was not an incessant talker; but when he talked the Senate listened, for he never spoke unless he had something to say. He dealt as a rule with great questions and spoke only after careful preparation and prolonged meditation upon his theme. These questions he handled in such masterly fashion, with argument so convincing, with eloquence so persuasive, with a temper so lofty and serene, that his discourses will long remain documents worthy of admiration and study. His argument against the force bill of 1890, his exposition of the Monroe doctrine upon the occasion of Cleveland's Venezuelan message, his plea for congressional recognition of the belligerency of Cuba, are permanent additions to American political literature. In each case he dealt with a problem of great and abiding interest; in each case it was necessary to set forth in clear order a vast complex of facts and to carry a long train of intricate argument to a convincing end; in each case it was Daniel's aim to crystallize his conclusion in some memorable phrase, which should make permanent lodgment in the minds of his hearers. It is only by careful reading of these documents that we come to appreciate their luminous clearness, their energetic forcefulness, their perfect artistry. Here are a few samples of his method; but remember that they are samples only and give you no adequate conception of the vigor and the beauty of the whole.

Of the force bill:

> Behind this bill crouches the empire. * * * It is not by anything I say that I hope to affect a vote. But these sacred principles of American liberty neither came from me nor derive any sanction by me. They are my right, they are my people's rights, they are my country's rights. They have flowed down from the headwaters of the Anglo-Saxon race; they have been achieved by the battles of a thousand years; and that for which our country is most famous is the fact that it has been the sternest and the truest of that race in their defense.

Of possible war with Spain:

> It is said that this means war. I deny it. I do not wish to see the American people involved in war. I look upon war as one of the greatest calamities that can befall the human race. But there is one other much greater calamity, and that is for the high public spirit of a nation to be so deadened that it can look upon plunder and pillage and murder and arson with indifference and can stifle the truth for venal considerations. It is worse than war for the public spirit of that nation to be so deadened that it hesitates or delays one instant to go forward and to do any act of high and great justice because of fear of war.

Of the Monroe doctrine:

> With us are the law and the prophets, and behind us are the intelligent, patient, and patriotic masses of a great people, whose approval of American principles is unmistakable. I fully agree with those who caution us against inflammatory and irritating speeches. * * * But common sense looks at facts as they are, and it is a fact so plain that he who runs may read that this Nation will not recede from the Monroe doctrine. It is not to be expected of us who have time-honored principles to vindicate, an obvious and wise policy to subserve, and a noble, aspiring nation to uphold in its dignity as the paramount power of the Western Hemisphere, to speak in whispers, to start at shadows, or to mope in pusillanimous silence when the corridors of the Capitol are ringing with denunciations of our course, and with ill-conceived belittlements of our fixed faith.

Not the least interesting outcome of Daniel's senatorial career is the steady development in his own nature of that spirit of high-hearted Americanism which made him in his later years a great national figure in our public life. So gradual was the change that it may be doubted whether he himself was conscious of that tidal stream in his own soul, which bore him forward into new seas of emotion and belief. It is when we read his public utterances in their chronological order that we come to see how far the Federal Senator has voyaged from the port whence the Confederate major first set sail. It would be too long to trace out his route in its completeness: we can spare time to look at only a few of the landmarks left by him along the shore.

Here is Daniel the law student of 1866, final orator of the Jefferson Society of the University of Virginia, as he makes his valedictory to his fellow students:

> From first to last Virginia was foremost in the picture by the flashing of the guns, and though her fair domain has been reddened with the heart's blood of her children and blackened with the ashes of happy homesteads, we rejoice today as we rebuild our ruins and scatter roses o'er our brothers' graves that all have preserved unstained their sacred honor.

Here is the Daniel of 1877, now a member of the State Senate, speaking from the same platform and once more to an audience of students:

> Revere the past; but remember that we can not live in it. As Christ said of the Sabbath, so may we say of the past—it was made for man, not man

> for it. * * * We failed to conquer the form; be it ours to strive to conquer the souls of our Northern brethren, with a sublimer faith, a more gracious courage, a broader magnanimity. Magnanimity of the conqueror is a generous concession; magnanimity of the conquered is an heroic achievement. The form of Saxon Harold was conquered at Senlac; his soul lives and conquers still in the blood of our conquering race.

In 1890 he delivered before the General Assembly of Virginia and by their invitation a discourse on the life and character of Jefferson Davis. He discussed the legality of secession and the causes of its overthrow:

> The United States have been unified by natural laws, kindred to those which unified the South in secession, but greater because wider spread. Its physical constitution answered in 1861 for the Northern mind that written constitution to which the South appealed. The Mississippi River, natural outlet to the sea for a new-born empire, was to it a greater interpreter of that constitution than the opinions of statesmen who lived before the great republic spanned the Father of Waters. * * * We are not of the North but of the South; yet now like all Americans we are both of and for the Union, bound up in its destinies, contributing to its support, seeking its welfare. As he was the hero in war who fought the bravest, so he is the hero now who puts the past in its truest light, does justice to all, and knows no foe but him who revives the hates of a bygone generation.

Six years later he is addressing the Senate of the United States on the occasion of President Cleveland's Venezuelan message:

> The British minister, George Canning, boasted in 1823 that he had called the New World into existence to redress the balance of the Old. If those who sympathize with Great Britain in this generation possess Canning's prescience, they must know that this Republic will not permit those balances to be disturbed by the weight of an iron hand, nor that New World to be made the prey of European adventurers; they must know that America's answer was final; they must know that if all Europe were to form itself again into a new conspiracy of kings to make spoil of any portion of the American continents, under any kind of cloak or pretext, and were to lay hands of violence for that purpose upon any, even the weakest of our neighbors, the United States would rise and face embattled Europe as one man, American sailors would scourge the sea from pole to pole, and six millions of American soldiers would spring to their guns.

Again in 1900 Daniel was the spokesman of the Senate at the joint assembly of the two Houses of Congress, met to celebrate the centennial of the first session of that body.

> Great peoples are made of the mixture of races, like the beautiful bronzes which are composed of many metals. The brightest and bravest blood of the world's great races is mixed in our blood. This is the only great Nation that ever passed through its formative conflicts without inflicting in a single case the penalty of death for a political cause. Does not this fact alone speak volumes for free thought, for free speech, for the Government of the people, for the high character of the American? If we have had strife it has been the proud and lofty strife of the brave and the true, who can cherish honor, who can cherish principle, who can cherish love, but who can not cherish hate. And be this never forgotten; our only strife was over the heritage which empire foisted upon our ancestors against their will and which the Republic has removed forever. Great problems lie before us—race problem, trust problem, Philippine problem. We may well view these and others with deep solicitude and anxious reflection. But if our problems be mighty, they grow out of our might and have the mighty to deal with them. They come to those who have never been confounded by problems and have never dodged one; who have solved problems just as great or greater than any now presented; who have left them all behind with monuments of their solution builded over them.

These citations have been chosen to illustrate the gradual evolution of Daniel's conception of the problems of American statecraft. They exhibit also, better than any formal analysis could do, the slow transformation of his oratorical style. That style remained to the end affluent, ornate, earnest, serious; the part of the jester, the part of the wit, the part of the cynic, the part of the buffoon—these were not Daniel's parts. But we may see how year by year useless ornament was pruned away; how year by year his periods were packed closer and closer with thought; how year by year he seemed to lift his auditors to higher planes of feeling and meditation. What had been florid became simple; what had been intricate became direct: what had been abstract became concrete. It would be too long to apply a like analysis to his splendid eulogies of the great Confederate leaders—of Jackson and Lee and Davis and Early; or to his addresses on the historic events and figures of the earlier epoch of the American Republic—the Battle of King's Mountain, Washington, Jefferson, Pocahontas. To signal out one or another for special praise would be invidious when all are of merit so distinguished, jeweled with passages of consummate beauty, and glowing throughout with an inward radiance of tender loyalty and devoted patriotism. It is commonly said that Daniel himself ranked his discourse upon the Battle of King's Mountain and his oration on Lee as, perhaps, the happiest of his formal addresses. Those who care for such distinctions will find much in these splendid examples of his eloquence to justify their claim to preeminence; but if, after reading Lee, you turn to Washington, or after reading the Battle of King's Mountain you turn to the Gettysburg Campaign, you may yourself be tempted to reverse your own verdict.

When we pass from the study of Daniel's career in detail to the contemplation of his genius and character as a whole, when we ask ourselves what was the true secret of his power, we are at once confronted with a fact of deep significance—his profound unlikeness to the men of his own generation. Call the roll of post-bellum governors, Congressmen, Senators from Virginia; you will find none like Daniel. Summon memory to bring back the great figures who have filled the stage of our national history during the decades of his public life: you will find not one like Daniel. His heart was warm and kind, his nature affectionate and tender, his spirit attuned to the sincerities of friendship; and yet there was in him a certain aloofness, a certain remoteness, a certain withdrawing from the familiar contacts of life. Men said that he was not a mixer; and yet he was preeminently a mixer; nearer to the plain common people than to their leaders; nearer to the farmer between the plow handles than to his colleague in the Senate; nearer to the man in the street than to the judge upon the bench or the governor in his chair of office. Men said that he was not a machine politician; but in truth no man believed more thoroughly in political organization, no man followed more loyally the party flag; only he was closer in spirit to the voter than to the candidate, nearer to the worker at the polls than to the manager of the campaign. Men said that he was impatient of detail and indifferent to private and personal interests; yet his legal treatises, his debates in Congress, his public addresses demonstrate a passion for detail, and his ardent eulogies of his comrades in arms show fathomless depths of sympathy and appreciation for his fellow men.

The differences which marked him off from the other statesmen of his own epoch showed plainly in the subjects which attracted his interests and excited his enthusiasms. With but two exceptions

Daniel's problems were the problems of an earlier age. The problem of enlarging the power and distinction of the Nation without infringing upon the rights of the States to the amplest measure of local self-government; the problem of guaranteeing to our sister Republics in the two Americas the blessings of representative government, unhampered by European control; the problem of extending throughout both American Continents the reign of righteousness and peace, of prosperity and order, of free speech and popular government—these problems and problems like them were the problems which came near to his heart. Daniel's problems were the problems of the fathers of the Republic; the problems of Washington and Jefferson, the problems of Madison and Monroe, the problems of the Nation rather than of a party. He conceived them as they might have conceived them, he attacked the solution as they might have attacked it. In this kinship of the great men of a great past we find the true secret of Daniel's strength. Listen for a moment to the noble profession of his political faith:

> There is something in this country greater than party. There is something higher than a convention platform. It is principle and country and kind. Thank God we are people of one language; of one law; and of a spirit that sticks to right and will do it—as God grants us to see the right—regardless of consequences to ourselves.

The burning questions of our modern politics seemed alien to Daniel and as a rule he eschewed them. "Race problem, Philippine problem, trust problem," he says in one of his orations: "What will you do with them? This is not the time, nor am I here to answer." Twice and twice only he attacked with his full force a modern question; and on both questions the historic evolution of economic laws has put him in the wrong. The one was the question of fiat money, as it is called; of an irredeemable national bank-note currency. The other was the question of national bimetallism, of the free coinage of silver. Under peculiar industrial conditions and for a brief period, from 1851 to 1872, international bimetallism seemed to be a defensible proposition. After 1872 it steadily lost ground; the logic of facts, more potent than the logic of the schools, was against it; in 1878 the last 5-franc piece was coined by the Latin Union and international bimetallism came to its predestinated end. National bimetallism never enlisted one competent defender; yet for 15 more years this fiscal nightmare tormented America, and it was not until the closing of the two great markets for silver (the United States and British India) in 1893 that it received its coup de grâce. Daniel was weak where Jefferson was weak; as Jefferson failed to grasp the merit of Hamilton's financial measures, so Daniel failed to read correctly the fiscal history of the modern world. Some men say that Daniel in the end recanted; I can not find that he ever recanted; he simply saw that the battle had gone against him, and kept silence. He himself declared in after years that he fought the free-silver fight to the last ditch.

This noble monument which we unveil to-day is therefore more than the memorial of a great and good man. It is the memorial of the end of an era. It is the effigy of the man who interpreted that era to the modern world with an eloquence, a beauty, a sweetness, a nobility that men who knew him can never cease to remember and to reverence. His aspect was that of an earlier world—the aspect of a patrician, serene and calm and almost beautiful. His courtesy was that of an earlier world—grave, gracious; with a certain sweet sincerity and yet also with a certain proud reserve. His eloquence was that of an earlier world—copious, ornate, solemn, touched always with emotion, flushed often with passion, appealing at once to the head and to the heart. His modes of thought were of that earlier world—deductive rather than inductive, "seeking the fountain rather than following the stream," ideal rather than practical, the thoughts of a philosopher rather than the thoughts of an empiric. His patriotism was of that earlier world—he loved Virginia best, and in our common country he but loved a greater Virginia. The axioms of his personal life were of that earlier age—a loyal friend, a chivalric foe, a devoted son, a tender husband, a solicitous father; he painted his own portrait when he described the man who could cherish honor, who could cherish principle, who could cherish love, but who could not cherish hate. This august bronze will figure for coming generations, for your children and your children's children, not Daniel alone but that earlier age of which Daniel was the essential product and the latest flower. When the time comes to assess his value as a statesman, to weigh and to measure his gifts and his genius, he must be compared not with the men of his own epoch, but with the statesmen of that earlier day. If the speaker were required to assign to John Warwick Daniel his just place in that great company, he would rank him below Daniel Webster, or Henry Clay, or John C. Calhoun; but higher than John Randolph of Roanoke, higher than Alexander H. Stephens, higher than Jefferson Davis.

The private life of a great publicist is for his family, his home, his intimate friends—not for the public. Yet, concerning Daniel, there are things which may be said without transgressing the bounds of decency, and for our learning these things ought to be said. When we think of Daniel, there are two things never to be forgotten. With genius and opportunities which might have commanded rich recompense and laid the foundation of a great fortune, he gave his days and nights of toil freely to his country and lived and died a poor man. With honorable wounds, which never ceased to ache and which at last broke the strength of even his stalwart frame, his labors were unceasing, his industry unremitting; neither pain nor weariness could still his active brain or deaden the generous beating of his knightly heart. On an occasion like the present Daniel himself summed up that which may decorously be said. Let us use concerning him the eloquent words which he used over the ashes of the martyred McKinley:

> I do not seek to canonize him as a saint or exalt him as a demigod. He was neither; such ranks do not belong to men. He doubtless had his faults; at least this I assume, for he was a man, and there is none perfect—no, not one—but he was a Christian and a gentleman. He made mistakes and errors, as have done the great and the small, the good and the bad, the wise and the foolish; but benignity beamed in his countenance, charity was in his heart and in his hands, and if none threw stones save those who had lesser faults than he, stones would lie still and hands hang down. In the sum of his qualities there was a noble aspect, a genial influence, a friendly attractiveness, an upward and onward exhortation. There was also a subtle magnetism—a nameless something that drew men to him and made good women honor and love him. He loved his fellow men; there was the true touchstone of his nature. He said all he could to cheer them; he did the best he could to serve them. This, to my understanding, is what is meant by true glory.

O

64th Congress } SENATE { Document
1st Session } { No. 20

ACTS AND RESOLUTIONS
OF THE
EIGHTH LEGISLATIVE ASSEMBLY OF PORTO RICO

MESSAGE FROM
THE PRESIDENT OF THE UNITED STATES
TRANSMITTING
COPIES OF THE ACTS AND RESOLUTIONS ENACTED
BY THE EIGHTH LEGISLATIVE ASSEMBLY
OF PORTO RICO DURING ITS FIRST
SESSION (JANUARY 11 TO
MARCH 11, 1915)

December 13, 1915.—Read, referred to the Committee on Pacific Islands and Porto Rico, and ordered to be printed

WASHINGTON
1916

UNITED STATES OF AMERICA
GOVERNMENT PRINTING OFFICE

MESSAGE OF TRANSMITTAL.

To the Senate and House of Representatives:

As required by section 31 of the act of Congress approved April 12, 1900, entitled "An act temporarily to provide revenues and a civil government for Porto Rico, and for other purposes," I transmit herewith copies of the acts and resolutions enacted by the Eighth Legislative Assembly of Porto Rico during its first session (Jan. 11 to Mar. 11, 1915, inclusive).

These acts and resolutions have not previously been transmitted to Congress and none of them has been printed.

WOODROW WILSON.

THE WHITE HOUSE, *December 13, 1915.*

LETTER OF SUBMITTAL.

WAR DEPARTMENT,
Washington, December 7, 1915.

MR. PRESIDENT:

I inclose herewith a set, in duplicate, of the laws and resolutions enacted by the Eighth Legislative Assembly of Porto Rico during its first session of 1915, together with drafts of messages for your signature, transmitting them to Congress, as required by section 31 of the organic act of Porto Rico, approved April 12, 1900.

Very sincerely,

LINDLEY M. GARRISON,
Secretary of War.

EIGHTH LEGISLATIVE ASSEMBLY.

MEMBERS AND OFFICERS OF EACH HOUSE.

Executive Council.

Luis Sanchez Morales, president.
Martin Travieso, Jr., secretary of Porto Rico.
Howard L. Kern, attorney general.
Allan H. Richardson, treasurer of Porto Rico.
J. W. Bonner, auditor.
Manuel V. Domenech, commissioner of the interior.
Edward M. Bainter, commissioner of education.
José C. Barbosa.
Antonio R. Barcelo.
Manuel Camuñas.
Tulio Larrinaga.

Employees: W. R. Bennett, secretary; Pedro De Castro, assistant secretary, interpreter, and translator.

House of Delegates.

[Elected Nov. 3, 1914, to serve 2 years from Jan. 1, 1915.]

Name.	District from which elected.	Residence.
Aponte Rivera, Arturo	Humaçao	Humaçao.
Aybar, Julio	Mayagüez	Mayagüez.
Benet, José	do	Do.
Benítez Flores, Manuel	Humaçao	San Juan.
Bustelo, Miguel A	do	Humaçao.
Capó Cintrón, Eduardo	Arecibo	Utuado.
Castro, Julio P	Mayagüez	Cabo Rojo.
Cantiño Insúa, Eduardo	Guayama	San Juan.
Coira, Fransciso	Arecibo	Ciales.
Coll y Cuchí, Cayetano	do	San Juan.
Cumpiano, Benito	Aguadilla	Lajas.
Díaz Navarro, Herminio	San Juan	San Juan.
Diego, José de	do	Do.
Fernández García, Benigno	Guayama	Cayey.
Figueroa, José Victor	Ponce	Juana Díaz.
Figueroa, Leopoldo	San Juan	Cataño.
Forés, Benito	Aguadilla	San Germán.
Giorgetti, Eduardo	San Juan	San Juan.
González Mena, Enrique	Aguadilla	Aguadilla.
Huyke, Juan B	Humaçao	Humaçao.
Ledesma, Fernando P	Arecibo	Hatillo.
López Díaz, Ernesto	Aguadilla	San Germán.
Martinez Nadal, Rafael	Ponce	Ponce.
Palmer, Santiago B	Arecibo	Arecibo.
Parra Capó, Francisco	Aguadilla	Ponce.
Pérez Pierret, Agustín	Guayama	Santa Isabel.
Piñero, Fulgencio, jr	do	Juncos.
Quiñones, Francisco P	Mayagüez	San Germán.
Riefkohl, Guillermo	Guayama	Patillas.
Rivera Zayas, Rafael	Ponce	Coamo.
Rossy, Manuel F	San Juan	San Juan.
Santiago Carmona, Leopoldo	Humaçao	Bayamon.
Tous Soto, José	Ponce	Ponce.
Valdivieso, Lucas P	do	Do.
Vargas, Hermógenes P	Mayagüez	Mayagüez.

EMPLOYEES.

José Muñoz Rivera, secretary.
Manuel Gilestra, interpreter.

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ACTS OF THE EIGHTH LEGISLATIVE ASSEMBLY OF PORTO RICO.

FIRST SESSION.

[Held at San Juan, Porto Rico, Jan. 11 to Mar. 11, 1915.]

OFFICE OF THE SECRETARY OF PORTO RICO.

I, Martín Travieso, jr., Secretary of Porto Rico, do hereby certify that the copies of the Acts and Resolutions of the First Session of the Eighth Legislative Assembly of Porto Rico, January 11 to March 11, 1915, hereto attached, are correct transcripts of the text of the original Acts and Resolutions.

Given under my hand at San Juan this thirtieth day of March, in the year of our Lord one thousand nine hundred and fifteen.

[SEAL] MARTÍN TRAVIESO, JR.,
Secretary of Porto Rico.

[No. 1.]

AN ACT Appropriating the sum of five thousand (5,000) dollars for the keeping, stabling, shoeing and veterinary treatment of the horses of the insular police for the remainder of the fiscal year 1914–15.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the sum of five thousand (5,000) dollars, or so much thereof as may be necessary, is hereby appropriated out of any funds in the Treasury of Porto Rico not otherwise appropriated to be expended in the keeping, stabling, shoeing and veterinary treatment of the horses of the Insular Police of Porto Rico during the remainder of the fiscal year ending June thirtieth, nineteen hundred and fifteen.

SEC. 2. Any law or part thereof in conflict with this Act is hereby repealed.

SEC. 3. This Act shall take effect from and after its approval, and shall date back to February 1 of the current year, so far as relates to the amounts already spent for the services specified in Section 1 hereof.

Approved, March 8, 1915.

[No. 2.]

AN ACT Making appropriations to supply deficiencies in appropriations for election purposes for the fiscal year ending June thirtieth, nineteen hundred and fifteen, and for other purposes.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the following sum be, and the same is hereby appropriated out of any money in the Treasury of Porto Rico not otherwise appropriated, to supply a deficiency in the appropriation for the fiscal year ending June thirtieth, nineteen hundred and fifteen, for the object hereinafter stated, namely: Expenses of elections in Porto Rico, 1914–15; for amount required to pay for expenses actually and necessarily incurred on account of the elections in Porto Rico held on November 3, 1914, in excess of the appropriation provided in the General Appropriation Act, approved March 28, 1914, twenty-seven thousand five hundred and twenty-four dollars and sixty-three cents ($27,524.63), and to pay such further claims and expenses as may exist or arise on account of the said election one thousand one hundred forty-four dollars and sixty-nine cents ($1,144.69); in all, twenty-eight thousand six hundred sixty-nine dollars and thirty-two cents ($28,669.32), or so much thereof as may be necessary.

SEC. 2. That the further sum of five thousand two hundred forty-five dollars ($5,245) is hereby appropriated out of any funds in the Treasury of Porto Rico not otherwise appropriated, in order to reimburse the appropriation known as "Miscellaneous expenditures, subject to the approval of the Governor," said sum having been advanced by the Governor from said appropriation for the purpose of supplying a deficiency in the appropriation "Contingent Expenses, Insular Police, Elections," Fiscal Year 1914–15.

SEC. 3. That the further sum of three thousand dollars ($3,000) is hereby appropriated out of any funds in the Treasury of Porto Rico not otherwise appropriated, in order to reimburse the appropriation known as "Miscellaneous expenditures, subject to the approval of the Governor," said sum having been advanced by the Governor from said appropriation for the purpose of providing for "Judicial Election Expenses" under the direction of the Department of Justice.

SEC. 4. That the Auditor and the Treasurer of Porto Rico are hereby directed to credit the appropriation known as "Miscellaneous expenditures, subject to the approval of the Governor," with the sums provided for by Sections 2 and 3 of this Act.

SEC. 5. This Act shall take effect from and after its approval.

Approved, March 8, 1915.

[No. 3.]

AN ACT To amend section 1 of "An Act to establish and regulate the granting of life certificates to the teachers of Porto Rico," approved March 12, 1914.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That Section 1 of "An Act to establish and regulate the granting of life certificates to the teachers of Porto Rico," approved March 12, 1914, of the School Law, is hereby amended so as to read as follows:

"(106) That any rural, graded or principal teacher holding a valid license who shall have practiced satisfactorily his profession as such for five years in the public schools of Porto Rico, shall receive from the Department of Education a life certificate of the corresponding grade. No period of teaching prior to July 1, 1905, shall be reckoned in computing the length of service."

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 4.]

AN ACT Conferring upon women eligibility to become members of school boards in Porto Rico.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That any woman born in Porto Rico, or in the United States, who is twenty-five years of age or over on the date of her election or appointment, who knows how to read and write, and is not otherwise legally disqualified in accordance with the provisions of the Election Law in force; and who has resided in the municipality where she is to hold office for six months prior to the date of such election or appointment, shall be eligible to become a member of any school board in Porto Rico.

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 5.]

AN ACT Authorizing the School Board of Lajas to raze a school building that is in ruins.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the School Board of Lajas is hereby authorized to raze a school building built of native lumber and roofed with clay tiles which it possesses in the *barrio* París of the municipality of Lajas. Said building stands on a lot belonging to the School Board, is in the name of The People of Porto Rico, and in a ruinous condition.

SEC. 2. That the remains of such building may be utilized in such manner as the School Board of Lajas may direct.

SEC. 3. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 4. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 6.]

AN ACT To amend Sections 6, 7 and 8 of "An Act providing for the organization of a Board of Medical Examiners," approved March 12, 1903.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That Section 6 of "An Act providing for the organization of a Board of Medical Examiners," approved March 12, 1903, is hereby amended so as to read as follows:

"SEC. 6. That in future no person shall be allowed to practice medicine in Porto Rico, notwithstanding the possession by him of a diploma from a college or university of another country, unless he shall be previously examined and passed by the corresponding examining board, and on payment of twenty-five dollars as registration fee, which shall be covered into the Medical Board Fund provided for under Section 8 of this Act.

"There are hereby exempted from the provisions of this Act such physicians as are engaged in the Sanitation Service and in the Army or Naval Service of the United States of America, but the Director of Sanitation shall require them to register and pay a fee of twenty-five dollars, which shall also be covered into the said Medical Board Fund."

SEC. 2. That Section 7 of the aforesaid Act is hereby amended so as to read as follows:

"SEC. 7. Any person practicing medicine or surgery or any other branches thereof or midwifery within the Island contrary to the provisions of this Act, shall, for each violation of the provisions of this Act, be guilty of a misdemeanor, and upon conviction thereof shall be fined not more than five hundred dollars nor less than fifty dollars, or by imprisonment in jail for a term of from thirty to ninety days or both said fine and imprisonment, in the discretion of the court. Any person shall be regarded as practicing within the meaning of this Act who shall append the letters M. D. (Medical Doctor) to his or her name, who shall profess publicly to be a physician or surgeon, or who knowingly and with the intention of usurping the functions of authorized physicians shall prescribe, formulate, or direct for the use of any person, any drug, medicine, water, mixture, beverage, appliance, apparatus or other agency, whether material or not material, for the cure, relief, or palliation of any ailment or disease of the mind or body or for the cure or relief of any wound, fracture, or bodily injury, or other deformity, or who shall directly or indirectly receive compensation for such services."

SEC. 3. That Section 8 of said Act be amended to read as follows:

"SEC. 8. The fees for examinations and for a certificate shall be as follows: twenty dollars for an examination in medicine and surgery, and five dollars for a certificate if issued; for all other practitioners five dollars for an examination and five dollars for a certificate if issued. For an examination in midwifery five dollars, and three dollars for a certificate if issued. All fees shall be paid in advance to the Treasurer of the Board of Medical Examiners, which fees shall defray the entire expenses of said candidate for examination before the said Board of Examiners. Any one failing to pass the required examination shall be entitled to a second examination within six months without fee. And the moneys so received shall be turned over by the Treasurer of said Board to the Treasurer of Porto Rico, who shall deposit it to the credit of the Medical Board Fund, as hereinafter provided."

SEC. 4. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 5. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 7.]

AN ACT Authorizing the Municipality of Arroyo to levy a special tax for the purpose of paying the debt contracted for the construction of an aqueduct.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the Municipality of Arroyo is hereby authorized to levy a special tax not to exceed twenty-five one-hundredths of one per cent on the assessed valuation of the personal and real property in said municipality not exempt from taxation.

SEC. 2. That the proceeds of said tax shall be exclusively devoted to the payment of the debt contracted by the Municipality of Arroyo for the construction of its aqueduct.

SEC. 3. That the aforesaid special tax shall be levied in accordance with the provisions of Act No. 4, approved February 19, 1913, and amended March 12, 1914.

SEC. 4. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 5. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 8.]

AN ACT To amend Section 92 of the Code of Civil Procedure.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That Section 92 of the Code of Civil Procedure, as amended by an Act of the Legislative Assembly of Porto Rico, approved March 9, 1911, entitled "An Act to amend Sections 92, 123, 227 and 299 of the Code of Civil Procedure," is hereby amended so as to read as follows:

"SEC. 92. The summons may be served by the marshal of the district where the defendant is found, or by any other person over the age of eighteen, not a party to the action. A copy of the complaint must be served with the summons, unless two or more defendants are residents of the same district, in which case a copy of the complaint need only be served upon one of such defendants. When the summons is served by the marshal it must be returned with his certificate of its service, and of the service of any copy of the complaint, when such copy is served, to the office of the secretary from which it is issued. When it is served by any other person, it must be returned to the same place, with an affidavit of such person of its service and of the service of a copy of the complaint, when such copy is served.

"Upon serving the copy of the summons the person serving the same shall endorse thereon the date and place where it was served, and shall sign such endorsement. It shall not be necessary to make a literal copy of the return as shown in the original."

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 9.]

AN ACT Appropriating the sum of fourteen thousand one hundred dollars for the purpose of finishing a building at the School of Agriculture and Mechanical Arts.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the sum of fourteen thousand one hundred dollars or so much thereof as may be necessary is hereby appropriated for the purpose of finishing a building under construction and repairing a dairy barn at the College of Agriculture and Mechanical Arts, of Mayagüez.

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 10.]

AN ACT To amend section 30 of an Act entitled "An Act to provide for the organization, regulation and government of the Insular Police of Porto Rico," approved March 12, 1908.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That Section 30 of an Act entitled "An Act to provide for the organization, regulation and government of the Insular Police of Porto Rico," approved March 12, 1908, is hereby amended so as to read as follows:

"SEC. 30. The Insular Police Commission is hereby authorized to provide for the organization and administration of a relief fund to be formed by the fines imposed on members of the force and obtained from other sources for the purposes of providing funds with which to assist members of the force who shall become disabled by disease or accident suffered by reason or on occasion of the service, and the families of those who die as a consequence of such disease or accident. It shall have power to wind up or liquidate the affairs of any benefit fund maintained for the benefit of the Insular Police at the time of the passage of this Act. All moneys received by the Insular Police Commission on account of such fund shall be turned into the Insular Treasury, and the Treasurer shall cause them to be set aside in a special trust fund to be known as the Insular Police Relief Fund, and the money of this fund may be paid out only after warrants are duly signed and countersigned in accordance with law."

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 11.]

AN ACT To determine the qualifications of certain judicial officers of Porto Rico, and for other purposes.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the following are hereby established as indispensable qualifications for eligibility to the office of Municipal Judge in Municipalities of Class I and Class II:

(*a*) Admission to the bar of the Supreme Court of Porto Rico.

(*b*) Residence in the Island of Porto Rico for a period of not less than two years.

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect immediately after its approval, but in no case shall it be given retroactive effect.

Approved, March 11, 1915.

[No. 12.]

AN ACT To amend Section 12 of an Act entitled "An Act concerning the regulation of railroad transportation in Porto Rico; and conferring certain powers upon the Executive Council in connection therewith."

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That Section 12 of an Act entitled "An Act concerning the regulation of railroad transportation in Porto Rico; and conferring certain powers upon the Executive Council in connection therewith," approved March 9, 1911, is hereby amended so as to read as follows:

"SEC. 12. Be it further enacted, that all railroad companies of public service be and are hereby obliged to construct and maintain chains, gates, or other suitable protective devices, at all grade crossings of insular public roads, and at all such other public crossings as the Executive Council may designate. Any railroad company failing to establish and maintain the gates or chains at the crossings required by this Act, and at such other crossings as the Executive Council may direct to be made and maintained, shall be guilty of misdemeanor, and on conviction thereof in any court of competent jurisdiction shall be fined a sum not exceeding one hundred dollars for each and every offense.

"Subject to rules, regulations and orders of the Executive Council, all public service railroads shall fence in or otherwise properly guard or protect their tracks, so as to keep animals from entering upon such tracks; shall maintain their rolling stock, tracks and equipment in a proper state of repair and adequate for the safety of their passengers, their employees, and the general public; shall provide their locomotives with bells and whistles which shall be used upon approaching curves, tunnels, and road or street crossings whenever necessary as a warning of the approach of such locomotives; and shall equip such locomotives and trains with proper headlights and other adequate signal lights. Any railroad of public service violating an order of the Executive Council, made in accordance with the provisions of this section, shall be guilty of a misdemeanor, and on conviction thereof in any court of competent jurisdiction shall be fined a sum not exceeding one hundred dollars for each and every offense."

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 13.]

AN ACT Making provisions relative to the materials that shall be used in the construction, maintenance or repair of public works and buildings, the cost of which is to be paid from public funds.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That in all work of construction, maintenance or repair undertaken by the Insular Government of Porto Rico, muncipality, school board or other dependency of the Insular Government, the cost of which is to be paid out of any public funds, there shall be used, in so far as they are advantageous and desirable, suitable materials produced or manufactured within Porto Rico; *Provided*, That the cost of such construction, maintenance or repair, when using such materials or manufactured products, shall not be greater than the cost if such work had been done using materials produced or manufactured outside of Porto Rico.

SEC. 2. That the provisions of this Act shall not apply to works already contracted for or which have been already designed.

SEC. 3. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 4. That this Act shall take effect May 1, 1915.

Approved, March 11, 1915.

[No. 14.]

AN ACT Providing compensation for the lives of members of the insular police who die in the discharge of their duty, and for other purposes.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That should any member of the Insular Police of Porto Rico, whether an officer or a guardsman, lose his life in the performance of his duty as an officer or guardsman or as consequence of such performance of duty, The People of Porto Rico shall, from any funds in the Treasury not otherwise appropriated, pay an indemnity in the sum of one thousand dollars to the widow, descendents or ascendents in the first degree of such officer.

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 15.]

AN ACT To amend section 19 of the political code of Porto Rico.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That Section 19 of the Political Code in force, is hereby amended so as to read as follows:

"SEC. 19. The Legislative Assembly shall meet at the seat of government at ten o'clock a. m. on the second Monday of February, annually after the year nineteen hundred and fifteen and at other times when convened by the Governor in extraordinary session."

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect on the second Monday of February, 1916.

Approved, March 11, 1915.

[No. 16.]

AN ACT Providing for the continuance of the construction of the road from Martín Peña to Bayamón.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the sum of fifty-five thousand dollars, or such part thereof as may be necessary, is hereby appropriated from any funds in the Treasury not otherwise appropriated, to continue the construction of the road from Martín Peña to Bayamón, the construction of which was authorized by Act No. 15, Laws of 1912, and additional funds appropriated for the continuance of its construction by Act No. 117, Laws of 1913.

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect from and after its approval.

Approved, March 11, 1915.

[No. 17.]

AN ACT Regulating the collection of fees and costs in civil cases in the district and municipal courts in Porto Rico, and for other purposes.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That all amounts received in the offices of district and municipal courts in Porto Rico as fees in civil cases shall be paid in internal revenue stamps which shall be affixed by the secretaries and marshals, under their own responsibility, on the margin or at the foot of the documents registered. Said stamps shall be then canceled by writing across the face of each the word "canceled" and the date of such cancellation.

SEC. 2. That the schedule of fees to be paid in future for services rendered by the secretaries and marshals of the above-mentioned courts, by affixing and canceling the corresponding internal revenue stamps as herein provided, shall be as follows:

SCHEDULE OF FEES PAYABLE TO SECRETARIES.

A.	For each complaint in a litigious civil action in a district court	$5.00
B.	For the first pleading of the defendant in a litigious civil action in a district court, whether it be an answer, a demurrer or a motion	5.00
C.	For entering a case on the calendar and setting the same for trial	5.00
D.	For each notice of appeal from a district to the Supreme Court	5.00
E.	For each complaint in a litigious civil action in a municipal court	3.00
F.	For the first pleading of the defendant in a litigious civil action in a municipal court, whether it be an answer, demurrer or motion	3.00
G.	For entering a case on the calendar and setting the same for trial in a municipal court	2.00
H.	For each notice of appeal from a municipal to a district court	2.00

I. For each notice of the institution of voluntary jurisdiction proceedings in a district or municipal court	$5.00
J. For each final decision of a court in proceedings of voluntary jurisdiction	3.00
K. For each complaint in a district or municipal court in actions of unlawful detainer for non-payment	2.00
L. For each final judgment in cases of unlawful detainer for non-payment	1.00
M. For each petition in extraordinary proceedings	3.00
N. For every opposition of any party in extraordinary proceedings	2.00
O. For each notice of appeal in extraordinary proceedings	2.00
P. For each certificate under seal	.25
Q. For issuing copy of any document existing in the records including certificate when required, for each folio	.20

SCHEDULE OF FEES PAYABLE TO MARSHALS.

A. For each summons	1.00
B. For serving an attachment on property, or levying an execution or executing an order of arrest, or order for the delivery of personal property	3.00
C. For serving a writ of possession or restitution, putting a person in possession of premises and removing the occupant	3.00
D. For commissions of receiving and paying over money on execution or other process, when land or personal property has been levied on and sold, on the first one thousand dollars, two per cent; on all sums above that amount, one per cent; but in no case of sale of real estate shall his commission exceed the sum of one hundred dollars, and when the amount of such sale is credited on the debt and no money is transferred, then one-half of such commission.	
E. For commissions for receiving and paying over money on execution without levy, or where lands or goods levied on are not sold, on the first thousand dollars, one and one-half per cent; and one-half of one per cent on all over that sum, but not to exceed in any case the sum of fifty dollars. The fees herein allowed for the levy of an execution, costs for advertising and percentage for making or collecting the money on execution, must be collected from the judgment debtor by virtue of such execution, in the same manner as the sum therein directed to be made.	
F. For drawing and executing a marshal's deed, including the acknowledgment, to be paid by the grantee before the delivery	3.00
G. For executing a certificate of sale, exclusive of the filing and recording the same	1.00
H. For traveling, to be computed in all cases from the court house, to serve any summons and complaint, or any other process by which an action or proceeding is commenced, notice, rule, order, subpœna, venire, attachment on property, to levy on execution, to post notice of sale, to sell property under execution or other order of sale, or execute an order of arrest, or order for the delivery of personal property, writ of possession or substitution, to hold inquest or trial of right of property, for each mile actually and necessarily traveled, in going only	.25
but if any two or more papers be served in the same action or proceeding, or be in the possession of the marshal for service at the same time, and in the same direction, one mileage only shall be charged; and in serving a subpœna, venire, process or paper, when two or more witnesses, parties or persons to be served reside or are found in the same directions, traveling fees must be charged only for the most distant; and constructive mileage must in no case be charged or allowed.	
I. For executing an order of ejectment in unlawful-detainer proceedings	2.00
J. Marshals of municipal courts shall demand and receive the same fees as are established herein for marshals of district courts.	

SEC. 3. The costs corresponding to the secretaries of district courts shall include the stenographer's fees, excepting copies issued in accordance with Section 5 of "An Act to provide for the appointment,

duties and compensation of stenographer of the district court," approved March 10, 1904.

SEC. 4. That officers of district or municipal courts shall collect no other fees in civil actions than those established herein.

SEC. 5. That any officer of a municipal or district court who collects or receives other fees than those established herein, or who fails to comply with the duties imposed upon him by this Act, shall be guilty of misdemeanor.

SEC. 6. That each and every document or instrument required by this Act to bear an internal revenue stamp or stamps shall be null and void and shall not be admitted as evidence in a trial unless such stamps be attached thereto.

SEC. 7. Any person residing in Porto Rico who desires to commence a civil action, but is unable to make the payment of fees required by this Act, may present to the secretary an affidavit setting forth the fact of said inability, together with a copy of his proposed complaint and the secretary shall thereupon submit said affidavit and said complaint to the judge of said court, and the said judge may, if he deems the complaint sufficient in law, permit the filing of said complaint and thereafter the plaintiff shall be entitled to all of the services of all court officers, and the benefits of all writs and processes, the same as if all fees were paid. And any person against whom an action is brought, if unable to pay the fees required by this Act, may file said affidavit, together with a copy of his answer, or other pleadings in said cause, with the secretary of the court, and the same shall be by the secretary immediately submitted to the judge of said court, and if in the opinion of said judge the defendant presents a meritorious plea, and said judge is satisfied that said affidavit is true, then the defendant must thereafter be entitled to the services of all officers, and the benefit of all writs and processes, the same as if the fees were paid. But in any case the judge may require such additional showing as he may deem necessary whenever any party asks to be relieved of the payment of costs.

SEC. 8. That an Act of March 10, 1904, concerning fees and compensation of certain officers; Section 7 of an Act of March 10, 1904, to provide for the appointment, duties and compensation of stenographer of the district court; and Section 12 of an Act of March 10, 1904, reorganizing the judiciary of Porto Rico, and all laws in conflict herewith are hereby repealed.

SEC. 9. That this Act shall be applicable only to those actions instituted on and after the date it goes into effect, such actions as were instituted prior thereto, to be governed by previous laws.

SEC. 10. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 18.]

AN ACT Providing for the conveyance to the Municipality of San Juan of title to that portion of Insular Road No. 1 known as Ponce de Leon Avenue, and for other purposes.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the Commissioner of the Interior, under conditions hereinafter set forth, is hereby authorized and directed to execute a proper deed transferring and conveying to the Municipality of

San Juan, title to that portion of Insular Road No. 1 known as Ponce de León Avenue.

SEC. 2. That the Municipality of San Juan shall accept title to the said Ponce de León Avenue, and thereafter shall construct, maintain and repair sidewalks, gutters and drains on the said avenue, and maintain, in perpetuity, the said avenue in good condition of repair, open to traffic and use by the general public as a public street.

SEC. 3. That the Muncipality of San Juan shall spend not less than twenty thousand dollars ($20,000) during each fiscal year ending June 30, from 1916 to 1925, each inclusive, in paving the said avenue with asphalt blocks similar to those used by the said municipality in paving the Paseo de Covadonga, and shall so pave at least one-tenth of the length of the said avenue during each of the said fiscal years; *Provided*, That if the said municipality shall complete the paving of the entire length of the said avenue before the expiration of the said ten years it shall not thereafter be required to spend the said twenty thousand dollars each year.

SEC. 4. That there is hereby appropriated from any funds in the Treasury not otherwise appropriated, the sum of one hundred thousand dollars ($100,000) to be paid to the Municipality of San Juan in ten equal installments during each of the fiscal years ending June 30, from 1916 to 1925, each inclusive, to aid the Municipality of San Juan in paving and maintaining Ponce de León Avenue; *Provided*, That the installment to be paid to the said municipality during the fiscal year ending June 30, 1916, shall be paid by The People of Porto Rico in two equal amounts on October 1, 1915, and April 1, 1916, and on the same dates in the fiscal years following to 1925 inclusive; *Provided*, *further*, That if the Municipality of San Juan terminates the paving of said avenue from funds proceeding from any loan that it may contract in the future, the annual installments due by the Insular Government shall be covered into the fund for the payment of principal and interest of such loan.

SEC. 5. That the expense of transfer and registry of title to the said avenue shall be paid by the Municipality of San Juan.

SEC. 6. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 7. That this Act shall take effect from and after its approval.

Approved, March 11, 1915.

[No. 19.]

AN ACT To amend Section 1 of an Act entitled "An Act to amend Section 1 of 'An Act to establish a law of Civil Register,' approved March 9, 1911, as amended by an Act to amend said Civil Register Act, approved March 7, 1912," approved March 13, 1913, amended by another Act approved August 9, 1913.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That Section 1 of "An Act to establish a law of Civil Register," approved March 9, 1911, as amended by an Act to amend said Civil Register Act, approved March 7, 1913, amended by another Act of March 13, 1913, and again amended by an Act approved August 9, 1913, is hereby amended so as to read as follows:

"SEC. 1. Acts concerning the civil status of persons shall be recorded in the register kept for such purpose, which shall be known as the Civil Register of Porto Rico. Such register shall be kept in all the municipalities of the Island of Porto Rico, and shall be in charge of the municipal secretaries under the immediate inspection of the mayor of each municipality; *Provided*, That in the towns of Punta Santiago, of Humacao; Cataño, of Bayamón; Florida Adentro, of Barceloneta; Palo Seco, of Toa Baja; Aldea Saenz, of Mayagüez; Boquerón, of Cabo Rojo; Rosario, of San Germán; Playa, of Ponce; Villalba, of Juana Díaz; Loíza Aldea, of Loíza; Bajadero, of Arecibo; Cacao, of the Municipality of Barros; and the *barrios* of Mameyes Abajo and Angeles of the Municipality of Utuado, and in the *barrio* Doña Elena, of Comerío, there shall be an auxiliary civil register in charge of the commissioner of said towns; *Provided*, That in the civil register of the town of Cacao there shall be recorded all acts concerning the civil status of persons residing in the *barrios* of Cacao, Bauta Abajo, Piedra and Collores, of the Municipality of Barros; *And provided*, That in all those cases in which the installation of cemeteries shall be authorized in the rural *barrios* for reasons of convenience, authority is hereby granted to the *alcalde* of the municipality to which said cemetery belongs to appoint an assistant registrar, who shall make the inscriptions required by law; *Provided, further*, That in all cases of the interment of a body without a certificate signed by the doctor, the custodian of the register shall require a special certificate which shall be prepared by the family before the above-mentioned official. Blanks for said certificates shall be furnished gratis by the Sanitation Service."

SEC. 2. Any two or more municipalities may, upon due resolution of the respective municipal councils and their mutual consent, and the approval of the Director of Sanitation and the Attorney General, establish and maintain a cemetery in common, in either of the said municipalities, in the following manner and upon the following conditions:

(*a*) The cemetery shall be under the direction and control of the Director of Sanitation, who shall provide for its establishment, maintenance and all necessary incidents thereto. The expenses of establishment and proper maintenance of the cemetery and branch of the civil registry, and all incidents thereto, shall be paid by the participating municipalities, in such proportionate share and amount as may be determined by the Director of Sanitation upon the approval of the Executive Council. If the municipality shall not pay upon notice its said share and amount, the same shall be paid by the Treasurer of Porto Rico and the amount so paid shall constitute a lien on the municipal revenues collected by the Treasurer of Porto Rico for account of the respective municipalities from whom they shall be due, and shall be retained by the Treasurer of Porto Rico from such collections.

(*b*) A branch of the Civil Registry of each of the participating municipalities shall be maintained under the superintendence of the Attorney General in the municipality in which the cemetery is located. An assistant registrar in charge thereof shall be appointed by the Director of Sanitation. Entries shall be made and records kept in all cases provided by law; *Provided*, That the records be kept separately for each of the participating municipalities.

At least semi-annually and as often as the Attorney General shall direct, a certified transcript of the records shall be forwarded to the main Civil Registry of the municipality to which the records relate and upon receipt thereof the municipal secretary shall cause them to be re-transcribed and recorded in the Civil Registry in the manner provided by law.

(*c*) No municipality, having once participated as aforesaid in a cemetery in common, may withdraw its support therefrom, except by the due consent of the other participating municipalities or of the Executive Council.

(*d*) A non-participating municipality may join in the operation and maintenance of a cemetery in common already established by establishing a branch civil registry as above provided and otherwise conforming to the provisions of this Act with reference to originally participating municipalities.

(*e*) The Director of Sanitation shall make all rules and regulations concerning the operation, maintenance and control of a cemetery established in accordance with this Act necessary to carry it into effect. After approval by the Executive Council, these rules shall have the force and effect of law.

SEC. 3. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 4. That this Act shall take effect on its approval.

Approved, March 11, 1915.

[No. 20.]

AN ACT Granting to former owners of real property sold for taxes subsequent to July 1, 1901, or to any one interested therein, the right to redeem said property on certain conditions.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the former owners of any real property that has been sold for the non-payment of taxes and bid in in the name of The People of Porto Rico subsequent to July 1, 1901, and prior to July 1, 1914, and which is now in the possession of The People of Porto Rico or the legal heirs of such former owners, or assigns, or any one having any interest therein are hereby given the right to redeem said property within one year from the date that this Act takes effect upon payment to The People of Porto Rico of the price for which such real property was bid in, together with interest from the date of the auction sale at which such property was bid in at the rate of four and one-half per cent per annum.

SEC. 2. When the property to be redeemed has been registered in the name of The People of Porto Rico, the Treasurer of Porto Rico shall notify the registrar of property in whose office the said property has been registered, and the registrar of property upon the payment by the person so redeeming of a fee of one dollar, shall note upon the certificate of purchase by The People of Porto Rico the fact of such redemption and that the property so redeemed shall remain subject to all liens and legal claims against it other than the tax liens for which it was sold, to the same extent and in the same manner as though said property had not been sold for taxes.

SEC. 3. Where the property to be redeemed has been leased by The People of Porto Rico, the person redeeming shall take the property subject to such lease, but in such case shall be entitled to receive the rent accruing subsequent to such redemption, and when the property has been improved in any manner by the expenditure of money thereon by The People of Porto Rico the person desiring to redeem shall, in addition to the payments provided for, be required to pay the amount of money so expended by The People of Porto Rico, with interest at the rate of four and one-half per cent per annum.

SEC. 4. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 5. That this Act shall take effect on July 1, 1915.

Approved, March 11, 1915.

[No. 21.]

AN ACT To allow certain young men who took the bar examination prior to January, 1912, to take new examinations for admission to the bar.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That such persons as were examined for the purpose of validating their degrees of attorneys-at-law prior to January, 1912, at which time an Act regulating the practice of law in Porto Rico became effective, and failed to pass, but who obtained a rating of not less than seventy per cent shall be allowed to take the examination for admission to the bar, in accordance with the law existing prior to January, 1912.

SEC. 2. All laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect upon its approval.

Approved, March 11, 1915.

[No. 22.]

AN ACT Providing for the construction of one kilometer of road between Ponce and Adjuntas.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That there is hereby appropriated from any funds in the Treasury, not otherwise appropriated, the sum of three thousand five hundred dollars, or such part thereof as may be necessary for the completion of one kilometer of road between kilometers 28 and 29 of Road No. 6, Adjuntas-Ponce section.

SEC. 2. That the Commissioner of the Interior is hereby entrusted with the execution of this Act.

SEC. 3. That this Act shall take effect on its approval.

Approved, March 11, 1915.

[No. 23.]

AN ACT To amend article 126 of the law of waters.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That Article 126 of the Law of Waters of 1879, promulgated in Porto Rico in 1886, is hereby amended so as to read as follows:

"ART. 126. Any person may make use of the waters running along their natural and public channels for drinking purposes or for washing clothes, vessels, and other objects, for bathing, or for watering or bathing horses and cattle, subject to police, sanitary and other regulations and laws.

"The Executive Council is hereby empowered to authorize the taking of water from such public channels, by means of pipes, for domestic or dairy purposes. Such authority shall be granted only after advertisement and public hearing, by means of an ordinance which shall be approved by the Governor of Porto Rico. The Executive Council shall specify in such ordinance the quantity of water, in liters per second, that the grantee may take, the manner of taking the same, and impose such other conditions as it may deem necessary to safeguard the rights and interests of the public and of other grantees."

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 24.]

AN ACT To amend section 22 of an act entitled "An act to establish a system of local government, and for other purposes," approved March 8, 1906, and amended March 14, 1907.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That Section 22 of Act entitled "An Act to establish a system of local government, and for other purposes," approved March 8, 1906, and amended March 14, 1907, be amended, adding at the end of the same the following:

"*And provided, further,* That nothing in this Section contained shall refer to the government of theatres belonging to municipalities, the same to be governed, in their occupancy, by municipal ordinances, except where the sale or encumbrance or lease for a period exceeding sixty days of same is intended, in which case the provisions in this Section shall be complied with."

SEC. 2. That this Act shall take effect from and after its approval.

Approved, March 11, 1915.

[No. 25.]

AN ACT To designate a day to be known as Mothers' Day.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the second Sunday of the Month of May of each year shall be known as Mothers' Day, to be devoted to the exaltation of motherly affection and its unbounded self-denial, thus tending to develop in the hearts of children that holy respect and undying love which they should feel for the woman that gave them life.

SEC. 2. That at least seven days in advance the Governor of Porto Rico shall publish in the newspapers of greatest circulation in the Island, a proclamation recalling the celebration of the day to which Section 1 hereof refers and shall indicate the emblematic flower to be worn by the inhabitants of Porto Rico as an external manifestation of joy and tender homage to the sublime ideal commemorated.

SEC. 3. That the emblematic flower mentioned in the preceding Section shall be the honeysuckle, until otherwise provided by the Legislative Assembly.

SEC. 4. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 5. That this Act shall take effect upon its approval.

Approved, March 11, 1915.

[No. 26.]

AN ACT Authorizing the municipality of Juncos to make a supplementary budget to supply deficiencies in the appropriations of the ordinary budget for the fiscal year ending June 30, 1915.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the municipality of Juncos is hereby authorized to adopt a supplementary budget for the fiscal year 1914–15 for an amount not to exceed seventy-five per cent of the balance remaining after deducting from the sum of the cash balance of ordinary funds on June 30, 1914, and the amount of delinquent taxes pertaining to ordinary funds covered into the municipal treasury in August, 1914, the total amount of obligations outstanding on June 30, 1914, and pertaining to the budget of 1913–14.

SEC. 2. That said supplementary budget shall be adopted in accordance with the provisions of the Municipal Law governing the framing and approval of a supplementary budget.

SEC. 3. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 4. That this Act shall take effect upon its approval.

Approved, March 11, 1915.

[No. 27.]

AN ACT To repeal certain no-fiscal-year appropriations created by previous legislatures.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the no-fiscal-year appropriations named in Section 3 of this Act, or such part of them as may remain after the passage of this Act, be and are hereby repealed; *Provided, however,* That any obligations that may have accrued and be unpaid when this Act shall have been approved, shall first be settled.

SEC. 2. The Auditor of Porto Rico shall require of each officer or employee charged with, or responsible for the expenditure of the funds appropriated a statement of any pending liabilities that may exist at the date of the approval of this Act. On receipt of said statement, the Auditor shall close out by surplus fund warrant, in the manner required by law, such part of the appropriations set forth in Section 3 hereof as shall not be encumbered by the aforesaid obligations.

SEC. 3. Statement of no-fiscal-year appropriations to be repealed:

Title.	Creative act.	Unexpended balance March 1, 1915.
Establishing hospitals in the seven districts of Porto Rico	No. 44, 3/13/13	$120,000.00
Sanitation Service, Indemnity Fund	J.R. 16, 3/13/13	29,778.20
Commission for study of Employers' Liability Law	J.R. 19, 3/13/13	725.91
Deviating course of river at Arroyo	No. 54, 3/13/13	997.70
Insular Fair Board	No. 105, 3/13/13	22,110.51
Purchase of pedestal and transferring statue of Ponce de León	J.R. 10, 3/13/13	4,000.00
Expenses of the Bank Law Commission	J.R. 11, 3/ 7/12	1,000.00
Establishing permanent exposition grounds for the Insular Fair	J.R. 14, 3/13/12	75.00
Survey and study for widening San Juan-Rio Piedras Road	J.R. 12, 3/ 9/11	2,710.85
Publication of Digest of the Decisions of the Supreme Court	No. 118, 3/13/13	7,200.00
Publication of the Decisions of the Supreme Court: Rent and transportation	J. R. 19, 2/14/12	.62
Publication of the Decisions of the Supreme Court: Advance sheets and Digests	No. 21, 3/ 6/12	1.40
Demolition and reconstruction of a building in Caguas	No. 53, 3/13/13	19,975.58

Provided, That the provisions of this Act shall not apply to the unexpended portion of the appropriation of $75,000 made under Section 1 of Act 108, approved March 13, 1913, for the construction of five buildings for industrial and agricultural schools.

SEC. 4. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 5. That this Act shall take effect on approval.

Approved, March 11, 1915.

[No. 28.]

AN ACT To amend Section 85 of the Political Code, as approved March 1, 1902, and to authorize the endorsement of any draft issued by the Treasurer of Porto Rico, by the next of kin, in case no executor or administrator has been or is to be appointed for the estate of a decedent, and for other purposes.

Be it enacted by the Legislative Assembly of Porto Rico:

SEC. 1. That Section 85 of the Political Code of Porto Rico, as approved March 1, 1902, be and the same is hereby amended so as to read as follows:

"SEC. 85. No indorsement of any draft of the Treasurer by an attorney in fact or agent of the payee of such draft, shall be valid unless specially authorized by a power of attorney duly executed by the payee, or, in case of his death, by his duly appointed executor or administrator, after the issuance of the draft, in the presence of two subscribing witnesses, and duly acknowledged before a notary public or any officer having authority to take acknowledgments of deeds. Such power of attorney must recite the number, date and amount of the draft, and the number and class of the warrant on which such draft is drawn, and must be filed with the draft.

"Indorsements by the payee in person must be written by him and correspond with the name of the payee as written on the face of the draft. If the payee is unable to write his name upon the draft, the indorsement may be by his cross-mark made thereon in the presence of two attesting witnesses who shall subscribe their names as witnesses. When the draft is payable to a firm or partnership, it must be indorsed in the name of such firm or partnership by an active partner thereof; when payable to a company or corporation, the draft must be indorsed by the officer or agent of such company or corporation duly authorized to receive, receipt and indorse in its behalf.

"In case of the death of the payee of any draft issued by the Treasurer, the duly appointed executor or administrator of the decedent, or the heirs judicially declared, shall have authority to indorse such draft; *Provided*, That in case no executor or administrator has been appointed for the estate of the said decedent, or that the heirs have not been judicially declared within three months after the death of the decedent, then the legal heir or heirs, in the opinion of the Auditor of Porto Rico legally entitled to such payment, shall have authority to endorse such draft provided it does not exceed one hundred dollars; and in case of the bankruptcy or insolvency of such payee, the trustee of his estate, duly appointed by a competent court, shall have authority to indorse. Where the payee of any such draft is unable to indorse the same, by reason of minority, lunacy or mental incapacity, his duly authorized tutor shall have authority to indorse. And in case of the absence of the payee from Porto Rico, and during such absence only, his agent or attorney duly authorized by power of attorney specially empowering such agent or attorney to transact all business of the principal with the Insular Government, and to collect and receive all moneys due to the principal by The People of Porto Rico, during such absence, shall have authority to indorse.

"The Treasurer shall require satisfactory evidence as to the authority for any indorsement to be filed with the draft before accepting such indorsement as sufficient, in order that the warrant and draft may be allowed in the settlement of his account by the Auditor."

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect immediately upon its approval.

Approved, March 11, 1915.

[No. 29.]

AN ACT Making appropriations to supply deficiencies in appropriations for the fiscal year ending June 30, 1915.

Be it enacted by the Legislative Assembly of Porto Rico:

SEC. 1. That the following sums, or so much thereof as may be respectively necessary, are hereby appropriated out of any funds in the Treasury not otherwise appropriated, to supply deficiencies in the appropriations for the fiscal year ending June 30, 1915, and for the objects in this Section expressly named:

OFFICE OF THE COMMISSIONER OF THE INTERIOR.

Contingent expenses, Office of the Commissioner of the Interior: Incidentals, automobile expenses, traveling expenses, postage and freight, telegraph and telephone service, stationery and printing and miscellaneous, $1,104.75.

Division of Public Lands: For field and traveling expenses and incidentals, in connection with land surveys, $650.

Division of Harbor and Docks: Percentage payments to pilots acting as captains of ports at ports other than San Juan, Ponce and Mayagüez, $425.

Total, Office of the Commissioner of the Interior, $2,179.25.

SEC. 2. That this Act shall take effect from and after its approval.

Approved, March 11, 1915.

[No. 30.]

AN ACT Authorizing and directing the Commissioner of the Interior to transfer to the Municipality of San Juan, Porto Rico, a certain parcel of land.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the Commissioner of the Interior is hereby authorized and directed to execute a proper deed transferring and conveying to the Municipality of San Juan, Porto Rico, that certain parcel of land situated in the *barrio* of Puerta de Tierra, Municipality of San Juan, Porto Rico, and described as follows:

"Parcel of land ten meters wide, situated to the south of street known as Tadeo de Rivero, and bounded as follows: On the north by San Agustín Street; on the south by the right of way of the *Compañía de los Ferrocarriles de Puerto Rico;* on the east for a distance of 62.29 meters by lot No. 50 B, the property of The People of Porto Rico, marked No. 16, on the official Department-of-the-Interior map of Puerta de Tierra, dated November, 1909; on the west for a distance of 59.55 meters by a lot also the property of The People of Porto Rico, marked No. 15 on the said official Department-of-the-Interior map of Puerta de Tierra."

SEC. 2. That the parcel of land so transferred shall be used by the Municipality of San Juan exclusively as a site upon which to construct a public street and public walks; *Provided*, *however*, That nothing herein contained shall be deemed to prohibit construction, in or under such street and walks, of sewers, water mains or pipes, or to prohibit the use of such street and walks, when duly authorized and under proper restrictions, by public-utility companies for the placing of street-car tracks, poles, wires, ducts, cables, conduits, pipes, etc., in, along, above or under the said street and walks; *And provided*, *further*, That the acceptance by the Municipality of San Juan of title to the said parcel of land shall be and constitute an agreement on the part of the said municipality to maintain the said street open to traffic, to macadamize or pave the surface of the said street, to provide for the construction of adequate walks for the use of the public, and thereafter to maintain or provide for the maintenance of the surface of such street and walks in good condition of repair; *And provided*, *further*, That should at any time the said street to be constructed on the said parcel of land be abandoned, or its use discontinued, the right or title to the said parcel of land shall thereupon revert to and be vested in The People of Porto Rico.

SEC. 3. That the expense of transferring the said parcel of land, and the registration of the corresponding deed shall be for account of and be paid by the Municipailty of San Juan, Porto Rico.

SEC. 4. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 5. That this Act shall take effect from and after its approval.

Approved, March 11, 1915.

[No. 31.]

AN ACT To protect Porto Rican cigars from fraudulent misrepresentation, by providing for adequate expert inspection, and the issue of stamps of guarantee covering the origin of tobacco used in the manufacture of such cigars, intended for exportation, and for other purposes.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the Treasurer of Porto Rico is hereby authorized to employ three additional internal revenue agents, who shall be tobacco experts, at salaries of fifteen hundred dollars each per annum; whose duty shall be the registration, in such form as may be directed, of the brands of cigars manufactured in Porto Rico, wholly or in part, from Porto Rican or other tobacco; the recording of leaf tobacco acquired and disposed of in the factories manufacturing cigars for export; the securing and preservation of statistics in relation to leaf tobacco grown in Porto Rico, importation of leaf tobacco, the exportation of cigars and leaf tobacco and the securing and preservation of all such other information in connection with this subject as may be directed by the Treasurer of Porto Rico. Said duty shall also include the inspection and examination of all tobacco on the premises of manufacturers of cigars or cigarettes, whether or not manufactured, for export, for the purpose of preventing and detecting the fraudulent use of guarantee stamps issued for cigars exported from Porto Rico and for the purpose of detecting in the exportation of said cigars, such as are wrongly marked, misbranded or falsely advertised, as Porto Rican, but which are in fact made from tobacco other than that of Porto Rican growth and manufacture.

SEC. 2. That the Treasurer of Porto Rico is hereby authorized to furnish and issue, to duly licensed cigar manufacturers in Porto Rico, upon proper application, in such form as he may by regulations prescribe, stamps to be known as "guarantee stamps," for cigars intended for exportation and said stamps shall be affixed to all cigars before they are removed from the place of manufacture for exportation. Any person exporting from Porto Rico any cigars on which the proper guarantee stamps have not been affixed as prescribed herein, or who ships or exports from Porto Rico cigars manufactured with tobacco other than Porto Rican tobacco, under the name of Porto Rican cigars or under any other name whatever, with the object of deceiving the purchaser or consumer, thus leading to the belief, or representing or giving the idea that the tobacco, or such part thereof as is claimed to have been used in the manufacture of said cigars is the product of the soil or of the manufacture of Porto Rico, when said tobacco is not in reality the product of either such soil or manufacture, shall be punished for each offense so committed by a fine not less than two hundred nor more than five hundred dollars, or by imprisonment for not less than two months nor more than six months, or by both penalties in the discretion of the court.

SEC. 3. No charge shall be made for guarantee stamps to be furnished to cigar manufacturers under the provisions of this Act.

SEC. 4. The guarantee stamps shall be issued for such cigars as have been manufactured in Porto Rico wholly from sound and clean Porto Rican tobacco, in sanitary factories and by cleanly operatives; for such cigars as have been manufactured in Porto Rico from Porto

Rican filler tobacco and from other than Porto Rican wrapper tobacco, in like sanitary factories and by cleanly operatives; for such cigars, the material of which although of Porto Rican growth, in whole or in part, are manufactured in Porto Rico in sanitary factories by the use of machines; for such cigars as have been manufactured in Porto Rico, in sanitary factories and by cleanly operatives, but from tobacco not of the growth of Porto Rico, and for such cigars as have been manufactured in Porto Rico, in sanitary factories and by cleanly operatives, from Porto Rican wrapper tobacco and from other than Porto Rican filler tobacco.

Such guarantee stamps as shall be furnished for cigars wholly manufactured from Porto Rican tobacco shall bear the following inscription in Spanish and English: "Cigars manufactured in Porto Rico of tobacco produced in Porto Rico," and such as shall be furnished for cigars manufactured in Porto Rico of tobacco which is not produced in Porto Rico shall bear the following inscription: "Cigars manufactured in Porto Rico of tobacco which is not a product of Porto Rico;" and such guarantee stamps as shall be furnished for cigars manufactured in Porto Rico of Porto Rico and other tobaccos shall bear the following inscription: "Cigars manufactured in Porto Rico of a mixture of Porto Rican and other tobaccos."

SEC. 5. That all applications for guarantee stamps, before being submitted, shall be duly executed and the information therein contained sworn to as true and correct, by the manufacturers of cigars, or other persons duly authorized to act in their stead, before any internal revenue agent, or other persons authorized to administer oaths in Porto Rico. Internal revenue agents are hereby empowered to administer oaths, the violation of which by any person shall be punished by the proper courts in accordance with the provisions of the Penal Code in force in Porto Rico.

SEC. 6. That every manufacturer of cigars intended for exportation shall keep in his factory and shall not remove therefrom a tobacco-register book which shall be open at all times to the inspection of internal revenue agents, and wherein shall be noted the quantity, in pounds, kind and class of tobacco received, promptly on its receipt in the factory, from whom purchased, the place of growth of same, its disposition, in pounds, before being removed from the factory or distributed therein for manufacturing purposes, the numbers of cigars produced therefrom, partially or wholly from Porto Rican tobacco, the disposition of such cigars and such other information as the Treasurer of Porto Rico shall by regulations prescribe. Every person failing to note in said tobacco-register book the information called for therein, or who falsely enters therein, as Porto Rican, any tobacco not of the growth of Porto Rico, or who shall fail to provide himself with or produce on demand of a duly authorized revenue officer any such book, shall for each such offense thus committed be fined not less than one hundred dollars nor more than five hundred dollars, or be imprisoned for not less than two months nor more than six months, and for the second and each subsequent offense thus committed both fine and imprisonment shall be imposed.

SEC. 7. Every person who shall forge, counterfeit or cause or procure to be forged or counterfeited any guarantee stamps provided, made, used and issued in pursuance of this Act, or who shall use or give away for use, any such guarantee stamps, on cigars other than those for which same were obtained, or who shall mark, print, add, alter or remove any marks or words thereon, shall for each such offense thus committed be fined not less than two hundred dollars nor more than five hundred dollars, or be imprisoned for not less than one month nor more than six months or both at the discretion of the court.

SEC. 8. That the Treasurer is hereby authorized to issue such regulations not in conflict with this Act, as may be necessary to properly carry into effect the provisions hereof, and said regulations shall have the force of law.

SEC. 9. That the sum of twelve thousand ($12,000) dollars is hereby appropriated, out of any funds in the Treasury not otherwise appropriated, for the salary, transportation, and per-diem expenses which shall be allowed to the employees appointed under this Act, in lieu of actual costs of subsistence (board and lodging) while so traveling, and for the purchase of necessary office furniture, and such stamps, books and other stationery as may be required in the administration and enforcement of the provisions of this Act.

SEC. 10. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 11. That this Act shall take effect July 1, 1916.

Approved, March 11, 1915.

[No. 32.]

AN ACT To amend section 5 of an act entitled "An Act to prohibit the carrying of arms," approved March 9, 1905, and for other purposes.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That Section 5 of an Act entitled "An Act to prohibit the carrying of arms," approved March 9, 1905, is hereby amended so as to read as follows:

"SEC. 5. In addition to the punishment authorized by Sections 1 and 4 of this Act, the judgment of conviction against the offender shall also declare a forfeiture of the firearms, instrument or weapon seized in favor of The People of Porto Rico. It shall be the duty of the court or justice to deliver the arms or instruments so forfeited to the Chief of the Insular Police, to be disposed of by him under the direction of the Governor; *Provided*, No sale of such arms shall be made for delivery within one thousand miles of Porto Rico, and that the proceeds of any sale of such arms may, by direction of the Governor, be turned into the Insular Treasury to the credit of the Insular Police Relief Fund."

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 33.]

AN ACT To add a new section to the Code of Civil Procedure.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That there is hereby added to the Code of Civil Procedure of Porto Rico, after Section 142 thereof, a new Section under number 142A, which shall read as follows:

"SEC. 142A. In all cases in which a motion to strike out or a demurrer to any pleading is sustained or overruled and a decision is not announced in the presence of the parties or their attorneys, it shall be the duty of the secretary of the court to mail a written notice to the losing party or his attorney within five days from the date of such decision, notifying him of such decision, and a copy of such notice shall be filed with the papers in the case and the time within which to amend or answer if leave therefor is given shall begin to run from the date of the filing of such notice among the papers."

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[No. 34.]

AN ACT To amend an Act entitled "An Act defining the privileges and immunities of members of the Legislative Assembly," approved February 21, 1902.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That Section 2 of an Act entitled "An Act defining the privileges and immunities of members of the Legislative Assembly," approved February 21, 1902, is hereby amended so as to read as follows:

"SEC. 2. Members of the Legislature in all cases, except treason, felony or breach of the peace, shall be privileged from arrest during the session of the Legislature, and for fifteen days next before the commencement and next after the termination thereof; nor shall any member during the same period be summoned to attend as a witness in any court except with the consent of the House of the Legislature of which he is a member. If any member of the Legislative Assembly of Porto Rico is interested in any matter, action or proceeding, whether as a party, necessary witness, or one of not more than two attorneys of record for one of the parties, such matter, action or proceeding shall not be set for hearing, argument or trial while the Legislature is in session, nor within the twenty days preceding or succeeding said session, and the setting of any hearing contrary to the provisions of this Act shall be null, unless such member of the Legislature shall have given his express consent therefor. In all cases the court in which said action or proceeding is pending shall immediately suspend the hearing or argument set, on petition of any person entitled to this privilege."

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 8. That this Act shall take effect immediately after its approval and shall have retroactive effect so far as relates to the present legislative period.

Approved, March 11, 1915.

[No. 35.]

AN ACT Providing for the sale to laborers of certain lands of The People of Porto Rico, and for other purposes.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. *Selection of lands.*—The Commissioner of the Interior, with the approval of the Executive Council, shall select and set apart, from time to time, such tracts of land belonging to The People of Porto Rico as he may deem to be the most available for carrying out the purposes of this Act.

SEC. 2. *Purposes for which land may be sold.*—The Commissioner of the Interior shall have power, according to the terms of this Act, to sell public lands which have been set apart in accordance with Section 1 of this Act, for two purposes: (1) For dwelling purposes, and (2) for dwelling and farming purposes. Public lands situated in or near towns may be sold for dwelling purposes only; public lands situated in rural sections may be sold either for dwelling purposes or for dwelling and farming purposes.

SEC. 3. *Size of lots for dwelling purposes.*—Lots of land to be sold for dwelling purposes shall be of such area as the Commissioner of the Interior, with the approval of the Executive Council, may decide, but not to exceed 500 square meters.

SEC. 4. *Size of lots for dwelling and farming purposes.*—Lots of land to be sold for dwelling and farming purposes shall be of such area as the Commissioner of the Interior, with the approval of the Executive Council, may decide, but not to exceed two hectares.

SEC. 5. *Advertising.*—After any particular tract of land shall have been set apart in accordance with Section 1 of this Act, the Commissioner of the Interior shall make a map of such land, dividing it into lots or small farms and, when, necessary, laying out streets, and shall publish a description of said lots or small farms at least three times in two newspapers of general circulation in Porto Rico. Such public notice shall also state briefly the conditions under which applications for said lots or small farms are to be made.

SEC. 6. *Requisites of applicants.*—No application for land under this Act shall be received unless the person making the same is (1) a citizen of Porto Rico or of the United States, (2) over twenty-one and less than fifty years of age, (3) married or is a widower or bachelor legally responsible for the support of a legitimate family, (4) a *bona fide* laborer whose annual income does not exceed $500, (5) able bodied, (6) without other property in Porto Rico or elsewhere the value of which exceeds $300, and (7) a person of good moral character.

SEC. 7. *Making of applications.*—After a tract of land has been advertised any laborer who can qualify as an applicant in accordance with the provisions of Section 6 of this Act, may make an application for a lot or for a small farm in the said advertised tract of land. All applications shall be made in writing and shall be filed with the Commissioner of the Interior, and shall state the applicant's first and subsequent choices of the lots or farms advertised. Laborers making application shall give all the information that the Commissioner of the Interior may request.

SEC. 8. *Homestead Commission.*—There is hereby created a commission to be known as the Homestead Commission which shall consist of the Commissioner of the Interior and two other persons to be appointed by the Governor; *Provided*, That the two principal political parties shall be represented on the said commission, and that no two members of the said commission shall belong to the same political party; *And provided, further*, That no compensation in addition to his regular salary shall be paid to any official or employee of the government who may be a member of the commission, nor shall any compensation be paid to any other person who may be a member of such commission. The Commissioner of the Interior shall be *ex officio* chairman of the commission. The duties of the commission shall be consultative and advisory in nature, except as otherwise expressly set forth in this Act. Especially shall it be the duty of the commission effectively to cooperate with the Commissioner of the Interior in securing the harmonious and equitable allotment of the various lots to be assigned under this Act.

SEC. 9. *Filing of applications.*—Laborers applying for lots for dwelling purposes, or for land for dwelling and farm purposes, shall be enrolled in registers kept by the Commissioner of the Interior, in the order of priority of filing of application.

SEC. 10. *Assignment of land.*—The Commissioner of the Interior shall make such inquiries and investigation regarding the worthiness of the various applicants, and the correctness of the information contained in their applications as he may deem necessary. The Homestead Commission may make such other inquiry as it may consider necessary, after which it shall apportion the lots or small farms to the most worthy applicants, due regard being had to all of the provisions of this Act, under such rules and procedure as it may deem proper. In the assignment of the lots preference shall be given (1) to those who, previous to January 1, 1915, had constructed or purchased houses located upon such public lands and (2) to those who had been residents for one year or more, previous to the date of advertisement of said tract of land, of the municipality in which such lands are located, and in the assignment of small farms, preference shall be given to those having the best records for industry and to those having the best knowledge of practical farming. Other things being equal, choice of lots or small farms available for assignment shall be given in the order of priority of the filing of application.

SEC. 11. *Conditions of sale of lots for dwelling purposes.*—All sales of lots of land for dwelling purposes shall be subject to the following conditions:

(*a*) That the applicant to whom a lot is assigned shall, within twelve months from the date of the assignment, own a house situated upon such lot free from any encumbrance, appraised at not less than $50 and in accordance with requirements prescribed by the Commissioner of the Interior, with the approval of the Homestead Commission.

(*b*) That the applicant to whom a lot is assigned shall, from the second to the eleventh year from the date of the assignment, pay annually to the Treasurer of Porto Rico a sum equal to 10 per cent of the appraised value of such lot of land.

(*c*) That the applicant to whom a lot is assigned shall, for a period of five years from the date of the assignment, live personally upon such lot; *Provided*, That the applicant shall be considered as living upon the lot when the family dependent upon him for support lives upon the said lot.

(*d*) That the Attorney General upon the request of the Commissioner of the Interior may eject the applicant in case any of these conditions are not fulfilled.

(*e*) That the applicant to whom a lot is assigned who has faithfully complied with all the conditions specified in this Section shall, at the expiration of eleven years from the date of the assignment, be entitled to receive a certificate from the Commissioner of the Interior stating that the conditions of this Section have been complied with, and that he is entitled to the possession of the said lot in accordance with the provisions of this Act.

(*f*) That the lots of land assigned to applicants under this Act and all buildings erected thereon shall never be subject to attachment or mortgage or other encumbrance of any form whatsoever, and shall be disposed of or inherited only as provided in this Act; *Provided*, That this Section shall not apply to any attachments or sale made to enforce the payment of taxes.

SEC. 12. *Conditions of sale for dwelling and farm purposes.*—All sales of small farms for dwelling and farm purposes shall be subject to the following conditions:

(*a*) That the applicant to whom a farm is assigned shall, within twelve months from the date of the assignment, own a house situated upon such small farm free from any encumbrance appraised at not less than $50 and in accordance with requirements prescribed by the Commissioner of the Interior, with the approval of the Homestead Commission.

(*b*) That the applicant to whom a small farm is assigned shall, within twenty-four months after the date of assignment, have under cultivation not less than one-third of the cultivable area of such small farm, and that he shall continue to keep not less than one-third of such area under cultivation for eleven years thereafter.

(*c*) That the applicant to whom a small farm is assigned shall, from the third to the thirteenth year from the date of the assignment, pay annually to the Treasurer of Porto Rico a sum equal to 10 per cent of the appraised value of such small farm.

(*d*) That the applicant to whom a small farm is assigned shall, for a period of five years from the date of the assignment, live personally upon such farm; *Provided*, That the applicant shall be considered as living upon the farm when the family dependent upon him for support lives upon the said farm.

(*e*) That the applicant to whom a small farm is assigned shall, for a period of seven years from the date of the assignment, permit the Commissioner of the Interior and the Homestead Commission to supervise the cultivation of his small farm.

(*f*) That the Attorney General, upon request of the Commissioner of the Interior, may bring proceedings for the ejectment of the applicant in case any of these conditions are not fulfilled.

(*g*) That the applicant to whom a small farm is assigned who faithfully complies with all the conditions specified in this Section shall, at the expiration of thirteen years from the date of the assignment, be entitled to receive a certificate from the Commissioner of the Interior, stating that the conditions of this Act have been complied with, and that he is entitled to the possession of said small farm in accordance with the provisions of this Act.

(*h*) That the small farms assigned to applicants under this Act and all buildings erected thereon shall never be subject to attachment or mortgage or any encumbrance of any form whatsoever, and shall be disposed of or inherited under the provisions of this Act only; *Provided*, That this Section shall not apply to any attachment or sale made to enforce the payment of taxes.

SEC. 13. *Rules for urbanization.*—The dividing of lands into lots and small farms, the laying out of streets thereon, as well as the houses constructed upon such lots and small farms shall be in accordance with the sanitary laws and regulations governing such matters now in force, or that may hereafter be promulgated.

SEC. 14. *Registration of property interests.*—A copy of each certificate issued to applicants in accordance with Section 11, paragraph (*e*), or Section 12, paragraph (*g*), shall be deposited by the Commissioner of the Interior with the proper registrar of property, who shall file the same and cause the property interests of the applicant to be recorded in accordance with the existing laws governing the recording of titles to property.

SEC. 15. *Fees, stamps, etc.*—No fees shall be charged and no stamps shall be required by any public official for transferring or recording property interests in lots or small farms assigned in accordance with the provisions of this Act.

SEC. 16. *Inheritance.*—The interests of the laborers occupying lands under this Act shall descend to their legitimate heirs, and in case the death of the laborer occurs before he has acquired definite title to the land, such heirs shall possess the qualifications required of any applicant; and such heirs shall comply with all the conditions of the contract.

Should the Homestead Commission decide that the heirs do not possess such qualifications, the said heirs may, within a period of five years, release their interests to any person possessing such qualifications, and if the transfer should not take place within the period above stated, the lands shall revert to the possession of The People of Porto Rico, to be used in accordance with this Act.

The heirs may also release their interests to The People of Porto Rico, and the commission shall endeavor to reassign them, and in such case the amounts received from the new applicants shall be paid by the Treasurer of Porto Rico to the heirs; but in no case shall the amounts to be paid to the heirs exceed the total payments made by the deceased laborer together with the value of the permanent improvements made on the land by the said deceased laborer, which value shall be determined by the Commissioner of the Interior, at the time of the reversion of the land to The People of Porto Rico, and any surplus shall be covered into the Homestead Trust Fund.

SEC. 17. *Sales.*—Laborers occupying lands under the provisions of this Act may, with the approval of the Homestead Commission, sell their rights to other laborers who are qualified to occupy such lands, or they may release their interests in such lands to The People of Porto Rico, in which case the commission shall endeavor to reassign the same in accordance with the provisions of this Act, to new applicants, and the amounts received from such new applicants shall be paid by the Treasurer of Porto Rico to said laborers; *Provided, however*, That in no case shall the amounts to be paid to said laborers exceed the total payments made by the said laborers in addition to the value of the permanent improvements made by the said laborers, which value shall be determined by the Commissioner of the Interior at the time such lands are released to The People of Porto Rico, and any balance shall be paid into the Homestead Trust Fund.

SEC. 18. *Taxes.*—All lots and farms sold to laborers in accordance with this Act, and all houses and buildings erected thereon shall be exempted from all taxes until the payment for such lots or small farms shall have been completed.

SEC. 19. *Municipalities.*—The municipalities of Porto Rico, subject to rules not inconsistent herewith to be approved by the Executive Council, and in general following the procedure and complying with the stipulations governing the sale of lots and farms belonging to The People of Porto Rico as set forth in this Act, so far as the same are not inconsistent or inapplicable, are hereby authorized to—

(*a*) Arrange, convey, improve and divide into parcels or lots any lands that they may possess which may be suitable for the construction thereon of laborers' houses, and sell the same to worthy laborers for dwelling purposes in accordance with the conditions provided in this Act for the sale of such lots of land belonging to The People of Porto Rico. Moneys thus received by the municipalities may be used by them with the approval of the Executive Council for any lawful purpose;

(*b*) Arrange, convey or donate the ownership of municipal lands which the municipality does not wish to utilize in accordance with the provisions of this or any other law to The People of Porto Rico, for the purposes of this Act;

(*c*) Accept donations of land to be used in accordance with the provisions of this Act, and donations of money or other valuables to be invested in lands for the same purpose.

SEC. 20. *Surveying of public lands.*—The Commissioner of the Interior shall cause to be surveyed as rapidly as possible such public lands as are deemed available for the purposes of this Act. The survey of such public lands may be paid for by the Treasurer of Porto Rico from any moneys to the credit of the said Homestead Trust Fund, hereinafter provided.

SEC. 21. *Ejectment proceedings.*—If the Commissioner of the Interior deems that any person is unlawfully retaining, occupying or possessing any lands of The People of Porto Rico, the Attorney General is hereby directed, upon the request of the Commissioner of the Interior, to institute proper ejectment proceedings in the name of The People of Porto Rico.

SEC. 22. *Homestead Trust Fund.*—All receipts by the Treasurer of Porto Rico under the provisions of Section 11, paragraph (*b*) and

Section 12, paragraph (*c*), or otherwise in connection with the carrying out of this Act, shall be passed to the credit of a special fund in the Treasury of Porto Rico to be known as the Homestead Trust Fund, and the said Homestead Trust Fund is hereby appropriated for use in carrying out the purposes of this Act. The sum of five hundred dollars ($500) is hereby appropriated from any funds in the Treasury not otherwise appropriated, to be passed to the credit of the Homestead Trust Fund in order to make available a fund for the initiation of the activities provided for by this Act.

SEC. 23. *Lands not subject to this Act.*—The provisions of this Act shall not be applicable to lands forfeited to The People of Porto Rico where there is a right of redemption, until the period provided for such redemption shall have expired.

SEC. 24. *Derogatory clause.*—All laws or parts of laws in conflict herewith are hereby repealed.

SEC. 25. *Time of taking effect.*—This Act shall take effect upon its approval.

Approved, March 11, 1915.

[No. 36.]

AN ACT Appropriating the additional sum of nine thousand (9,000) dollars for the completion of two bridges over the Rio Grande of Arecibo.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That in addition to the amount of twenty-five thousand dollars, appropriated by Act No. 132, approved August 9, 1913, to provide for the construction of a section of road from the portion of Road No. 2 already completed to the city of Arecibo, and for the construction of the necessary bridges thereon, there is hereby appropriated out of any funds in the Insular Treasury not otherwise appropriated, the further sum of nine thousand (9,000) dollars or so much thereof as may be necessary, in order to complete the construction of two bridges over the Rio Grande of Arecibo, connecting the city of Arecibo with Road No. 2.

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect upon its approval.

Approved, March 11, 1915.

[No. 37.]

AN ACT To establish a system of juvenile courts; to provide for the care of neglected and delinquent children; and to provide for the disposition of all cases of juvenile delinquency, and for other purposes.

Be it enacted by the Legislative Assembly of Porto Rico:

ARTICLE I.—JUVENILE COURTS.

SECTION 1. That there be, and hereby is, created and established in each and every one of the judicial districts of the Island of Porto Rico, a court to be known as the "Juvenile Court," which shall be a court of record, and which shall have within its district exclusive original jurisdiction of all cases of juvenile delinquency and dependency and cases contributing thereto, and of all cases arising under the laws for the protection of children. In all such cases said court shall have criminal jurisdiction.

SEC. 2. The district judge of each one of the seven judicial districts shall be the judge of the juvenile court within his district. In the Judicial District of San Juan the judge of Section 2 of said court shall be the judge of the juvenile court within the said district. In case of absence of the judge or of his inability or disqualification to perform the duties of said court, and pending the appointment of a new judge, it shall be the duty of the Attorney General of Porto Rico to designate one of the municipal judges within the district, provided he is a lawyer duly admitted to practice before the Supreme Court of Porto Rico, who shall act as judge of the juvenile court and hear and dispose of such cases as may come before him in the office of the judge of the juvenile court, during the absence, disability or disqualification of the district judge or until the vacancy is filled.

SEC. 3. Each one of the juvenile courts hereby created and established shall have a seal, with which all process issuing therefrom shall be authenticated; which seal shall be provided for each one of said courts by the Attorney General of Porto Rico, and shall contain the words, "Juvenile Court, District of ______________, Porto Rico," inserting the name of the district for which such seal is provided.

SEC. 4. The juvenile court shall hold sessions at the times and places designated by the judge thereof to hear and determine any and all cases cognizable before said court. Whenever the session of the court should be held at the regular hall of sessions of the district court, it shall be held at a time when there shall be no adult accused awaiting trial for any crime with the commission of which he may be charged.

SEC. 5. The *fiscals* of the district courts and judges of the municipal courts shall act and serve as probation officers of the juvenile court within their respective districts, and shall perform the duties hereinafter specified, within their respective municipal districts.

The juvenile court shall have power to appoint and designate whenever the judge thereof may deem it necessary, discreet persons of good moral character who are willing to serve as special probation officer, without compensation, and who shall perform such duties as may be assigned to them by the juvenile court. No person shall be eligible as a special probation officer who has been convicted of any crime against the laws of Porto Rico.

SEC. 6. The secretary, marshals and stenographer of the district court of each of the seven districts shall perform the duties of clerk, marshal and stenographer, respectively, of the juvenile court within their respective districts, which duties shall be such as may be assigned to them by the court or as this law shall direct.

SEC. 7. The Attorney General of Porto Rico shall have prepared and shall furnish to each juvenile court of Porto Rico a uniform series of blanks for complaints, commitments, reports and such other blanks as may be necessary, and a special record book, to be known as "The Juvenile Court Record." The said record shall be kept as a permanent record of all cases coming before the court under the provisions of this Act, the reports of probation officers, physicians, teachers and employers respecting juvenile cases, and such other matters as may be required by the Department of Justice.

It shall be the duty of each juvenile court, in addition to any other report which may be required in accordance with law, to submit to the Attorney General, between the first and fifteenth days of July of each year, and upon blanks to be furnished by the Attorney General and based on the juvenile court record, a report showing for the fiscal year ending June 30, the number, character and disposition of all the cases brought before the court, and such other information regarding such cases, and the parentage of such children brought before it, as shall be required by the juvenile court record. The information so reported by the juvenile courts shall be compiled by the Attorney General, and by him reported to the Legislature at its next regular session; and the Attorney General shall send a copy of his report to the Legislature and also to each juvenile court of Porto Rico.

ARTICLE II.—GENERAL PROCEDURE.

SEC. 8. For the purposes of this Act, the word "parents" or "parent" shall mean one or both parents, as is consistent with the intent of this Act; the word "child" or "children" shall include one child or more than one, as is consistent with the intent of this Act, and shall, unless specifically stated otherwise, include any child within Porto Rico who is under sixteen years of age, or having once come within the jurisdiction of the juvenile court by the provisions of this Act has not attained its majority. The words "delinquent child" shall include any child who violates any law of Porto Rico, or any ordinance of any town or city within Porto Rico; or who is incorrigible; or who knowingly associates with thieves, vicious or immoral persons; or who is growing up in idleness or crime; or who knowingly visits or enters a house of ill-repute; or who knowingly patronizes or visits any gambling house; or who patronizes or visits any saloon or other place where intoxicating liquors are sold; or who wanders about the streets after ten o'clock at night without being on any lawful business or occupation; or who habitually uses vile, obscene, or indecent language, or is guilty of immoral conduct in any public place or about any schoolhouse. Any child committing any of the acts herein mentioned shall be deemed delinquent, and shall be proceeded against as such as hereinafter provided.

The words "dependent child" shall mean any child who is dependent upon the public for support, or who is destitute, homeless or abandoned, or who has not proper parental care or guardianship; or who habitually begs or receives alms; or who is found living in any house of ill-fame, or with any vicious or disreputable persons; or whose home, by reason of neglect, cruelty or depravity on the part of its parents, guardian, or other person in whose care it may be, is an unfit place for such child; or whose environment is such as to warrant the people, in the interest of the child, in assuming its guardianship. Any child permitted by its parents or guardian to use spirituous or intoxicating liquors as a beverage, and not for medicinal purposes, or whose parent or guardian rears, keeps or permits in or about any saloon, or place where spirituous or intoxicating liquors are sold, or any gambling house, or any house of ill-fame or ill-repute, shall be deemed to be without proper parental care or guardianship.

Any child under the age of ten (10) years who is found begging, or who accompanies or is used in aid of a person so doing, shall be deemed and considered a dependent child.

SEC. 9. The juvenile courts shall have authority to issue subpœnas for witnesses and to compel their attendance by attachment as for contempt, and to issue all such process as may be necessary in any, case, arising under this Act.

SEC. 10. The probation officers are hereby vested with the power to make arrests and to file complaints and prosecute any person coming under the provisions of this Act. They shall serve all writs and process of the juvenile court, either in person, or through other persons specially deputized by them for such purpose; and they may deputize the marshal of the municipal court, or some other person of good moral character, to make an investigation of any case coming within the provisions of this Act, but the said marshal or other person shall not have power to make an arrest, unless they have a warrant duly issued by the probation officer authorizing the said arrest.

The special probation officer appointed by the juvenile court as hereinbefore provided, shall have power to make arrests only upon warrants duly issued by the judge of said court.

SEC. 11. Whenever there is a child to be brought before a juvenile court, it shall be the duty of the judge, if possible, to notify the municipal judge as a probation officer of the municipal district wherein the said child may reside, in advance, when such child is to be brought before the court. The said municipal judge, upon being notified, shall make such investigation as may be required by the juvenile court, and shall be present at the trial of the case, if possible, to represent the interests of the child; and in case of his inability to be present at such trial, he shall notify the juvenile court and shall furnish to the court such information, in writing, as may be required by the court, and the court may then order the case to be sent to the fiscal as probation officer.

SEC. 12. It shall be the duty of the district fiscal, when acting as probation officer, to appear before the juvenile court for the purpose of prosecuting or conducting any hearing or trial of any case in which he is acting as probation officer.

SEC. 13. It shall be the duty of every insular policeman, or of any other officer of the law, other than the probation officer, to arrest or detain any child for any cause under the provisions of this or any other law, to at once bring such child before the juvenile court or the judge thereof, or, to place it in charge of a probation officer, who shall thereupon make the necessary order for the proper care of said child, in accordance with the provisions of this Act.

It shall be the duty of the officer arresting or detaining such child to furnish the probation officer or the judge of the juvenile court with all the facts in his possession pertaining to said child, its parents, guardian, or other person who may be interested in the proceedings, and also the nature of the charge against the child or the cause for its detention.

Whenever a child shall have been placed in the custody of a probation officer it shall be the duty of such probation officer to transfer the case to the proper juvenile court, to take such child before said court, and in any such case the court may proceed to the trial of the case in the same manner as if the child had been brought before the court upon a petition as herein provided.

SEC. 14. Any person having knowledge of a helpless or delinquent child within his district may file with the juvenile court of the district a petition in writing setting forth the facts, and verified by affidavit. The affidavit may be made upon information and belief, but in that case the affiant shall set forth the sources of his information and the grounds for his belief.

The court may, of its own motion or at the request of some interested person, require any additional information as to the parents or relatives of such child, or the causes of its helplessness or delinquency.

SEC. 15. As soon as the petition is filed, unless the parties shall voluntarily appear in court, a summons shall be issued, in the name of The People of Porto Rico, requiring the appearance of the child and of the person having the custody and control of such child, if any there be, to appear at the place and at the time set in the summons, which shall not be later than twenty-four (24) hours after service, unless otherwise directed by the court.

The parents or nearest relatives of the child, or its tutor, if one there be, shall be notified and made parties to the proceedings; and the judge may appoint some suitable person or some association for the protection and care of children to act in behalf of the child. If the person summoned, as herein provided, shall fail without reasonable cause to appear and abide the order of the court, or to bring the child, such person may be proceeded against as in a case of a contempt of court. If the party served fails to obey the summons a warrant may issue on order of the court, either against the parent or guardian, or the person having custody of the child, or against the child itself.

On the return of the summons or other process, or as soon thereafter as may be possible, the court shall proceed to hear and dispose of the case in a summary manner, and enter final judgment therein; and the costs of all such proceedings under this Act may, in the discretion of the court, be adjudged against the person or persons so summoned, appearing or arrested, as the case may be, or against the parent or guardian or person having custody of the child, and shall be collected in the manner provided by law for the collection of costs and fines.

SEC. 16. Any case coming before the juvenile court may, in the discretion of the court, be conducted informally and by private examination and trial, to which only such parties as the judge may determine shall be admitted, unless the defendant, one of the parents, the guardian or other legal representative of the defendant, demands a public trial, when all proceedings shall be in the usual form.

If the child or other person before the juvenile court is charged with the commission of a felony, then the accused shall have the right to demand a trial by jury or the judge may on his own motion order a jury trial. If the accused does not demand the same, his right to jury trial shall be considered waived.

Any person accused of a violation of law and who may be brought before the juvenile court shall have the right to appear therein and to be represented by counsel, and the court may, in case such person is unable to retain counsel, appoint counsel to appear and defend on behalf of such person.

SEC. 17. Any person brought before the juvenile court and charged under the provisions of this Act shall have the right to give bond or other security for his appearance at the trial of such case.

SEC. 18. An appeal shall be allowed to the Supreme Court of Porto Rico from the final order or judgment entered by the juvenile court against any party, and such appeal may be demanded on the part of the child by its parents, guardian, or custodian, or by any relative of such child within the third degree of kinship.

The procedure upon an appeal to the Supreme Court shall be the same as authorized in the Code of Criminal Procedure for other criminal cases, except as hereinafter provided, but shall be entitled to preferential consideration in the calendar of the Supreme Court.

SEC. 19. If the age of any child appearing before the court should be brought into question, the court shall be final judge as to whether it has jurisdiction of the case; and for the purpose of passing judgment on the age of such child, the court may request a certified copy of the birth record thereof, and may summon as a witness any physician employed by The People of Porto Rico in the Sanitation Service or in any of the insular penal institutions. Said physicians shall not receive any fees for services so rendered. Whenever an officer or any other person arresting a child shall be in doubt as to the age of the said child, he shall proceed with the child according to the provisions of this Act, in the same manner as if the child was unquestionably under the age of sixteen years.

SEC. 20. The court may continue the hearing of any case to any date, and may in the meantime commit the child to the care of a probation officer, or of some other person of good repute, or to a public or private institution for the care of children; or the court may allow the child to remain in its own home, if it has one, or may commit the said child to be cared for in the home of some family willing to take it, subject, in any such case, to the friendly supervision and visitation of the probation officer, in such form as the court may determine.

SEC. 21. When the court on final hearing of any case shall decide that a child shall be committed to the correctional school or to any other analogous institution for confinement of juvenile delinquents the court shall enter such findings, which shall be entered in the juvenile court record, which shall include the findings of the court, the place to which the commitment is ordered, and a statement of the facts of the case, giving the name, age, nationality and residence of the child and of its parents, or of either of them, when and where the parents were married, circumstances surrounding the divorce if they are divorced, and who was given the custody of the child; and whether either or both parents abandoned the child.

SEC. 22. Whenever an order or judgment is made by the juvenile court for the commitment of a child, it shall be the duty of the clerk of said court to send a certified copy of the order and of the findings of the court, and also of the entry made in the juvenile court record, to the Director of Labor, Charities and Correction, who thereupon shall immediately proceed to comply with the order, committing the child to such public or private institution or association as he may deem convenient and most appropriate to the conditions of the child, unless the court shall have designated in its order the place to which the child shall be committed. Said official shall forward a copy of the court's decision to the institution to which the child has been committed, and shall report to the court such action as he may have taken in regard to the child.

The child shall become a ward and be subject to the guardianship of the institution to whose care it is committed.

Upon request of the Director of Labor, Charities and Correction, the court may order the removal of such child to another institution better adapted to the necessities of the child and more desirable for its welfare.

ARTICLE III.—SPECIAL PROCEDURE.

(A) JUVENILE DELINQUENCY.

SEC. 23. All punishments and penalties imposed by law or by city ordinances on persons committing any crime or offense, shall be discretionally imposed by juvenile courts, and the execution of any sentence may be remitted or suspended by the said court. No child under sixteen (16) years of age shall be incarcerated in any common jail together with adult criminals therein confined, but shall when his incarceration be absolutely necessary, be confined in a place separate from adult criminals, in such a manner as to make it impossible for the child to associate with or to be influenced by such adult criminals.

SEC. 24. Any order or judgment entered by the court against a child, or any evidence introduced in such case, shall not in any civil, criminal, or other case, or proceedings whatever in court, be legal or proper evidence against such child for any purpose whatsoever, excepting in subsequent cases against the same child under this Act.

SEC. 25. When any child shall be found to be a delinquent child, and the court does not deem it convenient for the child to remain in its home or in another home, the court may order the commitment of the child to any public or private institution; and if the delinquent child is a boy over sixteen years of age, the court may commit such child to the Reform School or to any other institution hereafter created for the confinement of juvenile delinquents.

(B) ADULT DELINQUENCY CONTRIBUTING TO JUVENILE DELINQUENCY.

SEC. 26. In all cases where a child shall be a delinquent child the parent or parents, tutor or any other person by any act encouraging, causing, or contributing to the delinquency of such child, shall be guilty of a misdemeanor, and upon trial and conviction thereof, shall pay the costs of all proceedings and be punished by a fine which shall not exceed the sum of one hundred dollars ($100), or by imprisonment in the district jail for a period not exceeding thirty days, or by both such fine and imprisonment.

The juvenile court shall have exclusive jurisdiction in all such cases, which shall be tried in the same manner provided by law for the trial of misdemeanors in the municipal court. If the act contributing to the juvenile delinquency constitutes a felony, the juvenile court shall report the fact to the district fiscal for proper procedure.

The juvenile court shall have discretional power to revoke or suspend sentence imposed on an adult in the misdemeanor cases referred to in this section.

NEGLECT OF CHILDREN.

SEC. 27. When a complaint is filed for neglect of a child, such child, and in default thereof, his legal representative, shall be taken before the court, which shall immediately investigate the facts as well as the position of the child, his residence, and that of his parents, tutor or nearest adult relatives, the time during which the child has supported himself from public or private charity, the occupation of the parents and their financial positions, in order to ascertain, as far as possible, the causes of such neglect.

When a child is declared neglected, the court may deliver him to his parents under such circumstances as it may deem favorable to the child's education.

SEC. 28. Whenever a child is declared neglected, the court shall adopt such measures as may be necessary to insure the best physical, moral and intellectual conditions of the child. If the court deems it inconvenient for the child to remain in his own home, it may commit said child to the care of any family of good repute and consideration of the locality, provided such family is willing to take charge of said child, to provide a home for and exercise vigilance over him. The court may also recommend the commitment of the child to any public or private institution.

No neglected child shall be confined for a period reaching his majority nor in any place where delinquent children are confined, and his traveling expenses in cases before the juvenile courts shall be paid in the same manner as those of jurors and witnesses in the district courts.

ADULT DELINQUENCY CONTRIBUTING TO THE NEGLECT OF CHILDREN.

SEC. 29. The parents or any person responsible for the neglect of a child or contributing to such neglect, shall be guilty of misdemeanor and punishable by a fine not to exceed $100 or by imprisonment for a maximum term of thirty days or by both such fine and imprisonment.

The inability of a person liable for the neglect of a child to support said child, shall constitute a circumstance exempting such person from said liability, whenever it is shown to the court before sentence is pronounced.

The juvenile courts shall have exclusive jurisdiction in all such cases, which shall be tried in the same manner provided for the trial of misdemeanors in the municipal court; but if the act constitutes a felony, the court shall report the same to the district *fiscal* for proper procedure, in accordance with the Code of Criminal Procedure.

SEC. 30. The court may suspend or reduce any sentence pronounced in accordance with Section 29 of this Act, or may set at liberty any person sentenced, under condition that such person shall file a good and sufficient bond in favor of The People of Porto Rico, subject to the approval of the court, in such amount as the court may determine, the sureties binding themselves to pay said amount, which shall not exceed twenty dollars a month for each child, which shall be devoted to the child's support during his confinement as herein provided.

The court may impose any other reasonable condition for the reduction or suspension of sentence, but such suspension shall cease and such reduction shall become null whenever said conditions are not complied with and in such case of failure to comply with the aforesaid conditions, the bond shall be forfeited.

ARTICLE IV.—DETENTION OF CHILDREN.

Under no circumstances, except by order of the court, shall a child under the age of 16 years be incarcerated in any common prison, jail or lock-up, and any officer or person violating this provision of law, shall be guilty of misdemeanor and punishable by fine not to exceed $25 or by imprisonment in the district jail for a maximum term of fifteen days, or by both such fine and imprisonment.

ARTICLE V.—GENERAL DISPOSITIONS.

SEC. 31. Any official who is negligent in complying with the duties imposed on him by this Act, shall be deemed guilty of misdemeanor and punished by a fine not to exceed $25 or by imprisonment in jail for a maximum term of fifteen days, or by both such fine and imprisonment.

SEC. 32. This Act shall be liberally construed to the end that its purposes may be carried out, such purposes being the protection and welfare of the child, and affording children the means of reforming, of receiving an education and of becoming law-abiding citizens.

The proceedings and judgments determined herein shall only imply the exercise of an eminent "partia potestad" by The People of Porto Rico over children, against whom no criminal precedent shall be established.

SEC. 33. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 34. That this Act shall take effect July 1, 1915.

Approved, March 11, 1915.

[No. 38.]

AN ACT Providing funds for necessary expenses of the first session of the Eighth Legislative Assembly of Porto Rico.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That from any funds in the Treasury not otherwise appropriated, there are hereby appropriated the following amounts to cover indispensable expenses incurred during the first session of the Eighth Legislative Assembly of Porto Rico:

Salaries, House of Delegates: Temporary employees and employees of the Insular Government whose services may be utilized during extra hours	$600.00
Contingent Expenses, House of Delegates:	
Legislative printing	1,000.00
Incidentals	600.00
Mileage for members	50.00
Total	2,250.00
Salaries, Executive Council: Temporary employees for engrossing, enrolling, translating and other clerical work in connection with the session of the Legislative Assembly	750.00
Contingent Expenses, Executive Council: Legislative printing	650.00
In all	$1,400.00

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect upon its approval.

Approved, March 11, 1915.

[No. 39.]

AN ACT Making appropriations for the necessary expenses of carrying on the government of Porto Rico for the fiscal year ending June 30, 1916, and for other purposes.

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the following sums, or so much thereof as may be respectively necessary, are hereby appropriated out of any funds in the Treasury not otherwise appropriated in full compensation for the services of the fiscal year ending June 30, 1916, for the objects hereinafter expressly named:

LEGISLATIVE ASSEMBLY OF PORTO RICO.

Salaries, Executive Council: Five members, at $2,500 each, $12,500; secretary, $3,000; assistant secretary, interpreter and translator, $2,800; clerk and stenographer, $1,800; clerk and stenographer, $1,400; journal clerk, $900; sergeant-at-arms, $1,100; messenger, $480; janitor, $360; temporary employees for engrossing, enrolling, translating and other clerical work in connection with the session of the Legislative Assembly, $1,500; in all, $25,840.

Legislative printing, $800; incidental expenses, $450; postage and freight, $200; traveling expenses, $400; telephone and telegraph, $10; stationery, $800; in all, $2,660.

Printing and binding the laws of Porto Rico and the Journal of the Executive Council, $2,500; in all, $2,500.

OFFICE OF THE FRANCHISE COMMITTEE.

Salaries, Franchise Committee: Secretary, $2,700.

Regulation of Public Utilities: Printing of forms for special reports, printing and incidental expenses in connection with inspection of facilities and equipment of public service corporations, printing and incidental expenses in connection with rate revision of public utilities, $400; in all, $400.

Total, Franchise Committee, $3,100.

Total, Executive Council, $34,100.

Provided, That the legislative printing for the Executive Council and the House of Delegates shall be done in the printing establishment offering to do the work at the lowest price after a public call for bids; *Provided*, That the Speaker of the House of Delegates and the President of the Executive Council may impose a fine not to exceed fifty dollars for each mistake or omission made by the printing contractor in complying with his contract.

Salaries, House of Delegates: Thirty-five members, for sixty days, at five dollars per day each, $10,500; secretary, $2,800; assistant secretary, $2,400; assistant secretary and property clerk, $2,200; sergeant-at-arms, $1,100; interpreter and translator, $1,700; typewriter clerk for the office of the Speaker, $1,100; two typewriter clerks for the office of the secretary, at $900, $1,800; messenger, $480; janitor, $480; in all, $24,560.

Temporary employees for engrossing, enrolling, translating and other clerical work in connection with the session of the Legislative Assembly, $1,200; two messengers for sixty days, at $60 each, $120; in all, $1,320.

Legislative printing, $1,200; incidental expenses, $1,000; purchase of books, furniture and equipment for library, $200; mileage for members, $450; in all, $2,850.

Total, House of Delegates, $28,730.

OFFICE OF THE GOVERNOR.

Salaries, Office of the Governor: Governor, $8,000; secretary of the Governor, $2,000; inspector of police under the Governor, $2,200; stenographer and custodian of records, $1,700; doorkeeper, $500; messenger, $360; in all, $14,760.

Stationery and printing, $500; telegraph and telephone, $250; furniture, $150; postage and freight, $200; incidental expenses, $650; in all, $1,750.

Expenses, Executive Mansion: Care, maintenance and repair of government buildings used and occupied by the Governor of Porto Rico, care of grounds, wages of employees in connection therewith, telephone service, purchase, renewal and repair of furniture, water, light, miscellaneous and necessary incidental expenses, $10,000; in all, $10,000.

Miscellaneous expenditures, subject to the approval of the Governor: Payment of miscellaneous claims, not otherwise appropriated for, and emergency expenditures for other purposes, upon recommendation of the Auditor and the approval of the Governor of Porto Rico, and for which transfer may be made to specific appropriations when the necessities of the public service may require it, $20,000; in all, $20,000.

Total, Office of the Governor, $46,510.

OFFICE OF THE SECRETARY.

Salaries, Office of the Secretary: Secretary, $4,000; assistant secretary, $3,000; chief clerk, $2,300; clerk, $1,700; clerk, $1,600; clerk, $1,600; clerk, $1,400; clerk, $1,300; clerk, $1,300; clerk, $1,200; clerk, $1,200; clerk and archivist in charge of the Spanish archives to be appointed by the Secretary of Porto Rico with the approval of the Executive Council, $1,200; clerk, $1,100; clerk, $1,100; clerk, $1,100; clerk, $1,100; clerk, $1,100; clerk, $1,000; clerk, $600; messenger, $480; messenger, $360; in all, $29,740.

Stationery and printing, $750; furniture, $200; postage and freight, $500; telephone and telegraph, $50; incidental expenses, $500; in all, $2,000.

Bureau of Weights and Measures—Salaries: Chief of Bureau, $2,300; assistant chief, $1,500; six inspectors, at $1,000, $6,000; typewriter-clerk, $540; stenographer, $900; warden, $360; in all, $11,600.

Stationery and printing, $350; traveling expenses, $4,000; telegraph and telephone, $50; equipment of weights and measures, $500;

postage and freight, including transportation of equipment (including transfer of some testing sets from one municipality to another), $600; incidental expenses, $600; in all, $6,100.

Total, Bureau of Weights and Measures, $17,700.

Total, Office of the Secretary, $49,440.

OFFICE OF THE ATTORNEY GENERAL.

Salaries, Office of the Attorney General: Attorney General, $4,000; Assistant Attorney General, $3,000; special *fiscal* at large, $3,500; law officer, $2,300; law officer, $2,300; chief of division of accounts, $2,300; secretary and translator, $1,600; file clerk, $1,500; stenographer, $1,400; stenographer, $1,200; stenographer, $1,100; two clerks, at $1,200 each, $2,400; clerk, $1,100; clerk, $720; two messengers, at $360 each, $720; janitor, $360; in all, $29,500.

Blank books, stationery, printing, office supplies, cablegrams, law books and other necessary incidental expenses, $2,500; litigation fund, $150; postage, $300; traveling expenses, $450; in all, $3,400.

Total, Office of the Attorney General, $32,900.

OFFICE OF THE TREASURER.

Salaries, Office of the Treasurer—Treasurer's Office proper: Treasurer, $5,000; Assistant Treasurer, $3,000; secretary, stenographer and translator, $1,500; mail clerk, $900; messenger, $360; janitor, $360; in all, $11,120.

Bureau of Accounts and of the paymaster: Chief of Bureau, $2,300; assistant chief, $1,700; financial, receiving and stamp clerk, $1,700; clerk, $1,500; clerk, $1,500; clerk, $1,300; two clerks, at $1,100 each, $2,200; clerk, $1,100; clerk, $1,000; clerk, $1,100; clerk, $900; clerk, $600; in all, $16,900.

Bureau of Municipal Finance: Chief of Bureau, $2,300; assistant chief, $1,700; clerk and stenographer, $1,200; in all, $5,200.

Bureau of Property Taxes: Chief of Bureau, $2,300; assistant chief, who shall have all the powers conferred upon internal revenue agents, $1,700; assessor and investigator of corporations, who shall have all the powers conferred upon internal revenue agents, $1,800; clerk, who shall have all the powers conferred upon internal revenue agents, $1,500; clerk and stenographer, $1,300; five clerks, at $1,200 each, who shall have all the powers conferred upon internal revenue agents, $6,000; two clerks, at $1,100 each, who shall have all the powers conferred upon internal revenue agents, $2,200; clerk, $1,000; clerk, $900; two clerks, at $900 each, $1,800; clerk, $720; three clerks, at $600 each, $1,800; messenger, $360; three assessors, at $1,500 each, who shall have all powers conferred upon internal revenue agents, $4,500; two assessors, at $1,400 each, who shall have all powers conferred upon internal revenue agents, $2,800; assessor, who shall have all powers conferred upon internal revenue agents, $1,300; clerk for the assessment and collection of the income tax, as prescribed by the Tariff Act of the United States, enacted October 3, 1913, $1,400; two clerks for the assessment and collection of the income tax, as prescribed by the Tariff Act of the United States, enacted October 3, 1913, at $1,200, $2,400; in all, $35,780.

Bureau of Internal Revenue: Chief of Bureau, $2,300; clerk, with powers of internal revenue agents, $1,600; clerk, with powers of internal revenue agents, $1,600; two clerks, at $1,100 each, $2,200; clerk and stenographer, $1,100; two clerks, at $900 each, $1,800; clerk, $720; clerk, $600; internal revenue agent at large, $1,800; seven internal revenue agents, at $1,400 each, $9,800; five internal revenue agents, at $1,300 each, $6,500; five internal revenue agents, at $1,200 each, $6,000; six internal revenue agents, at $1,100 each, $6,600; in all, $42,620.

Salaries, collectors of internal revenue, who shall have all the powers conferred upon internal revenue agents and upon assessors: Collector, San Juan, $1,800; clerk, $900; clerk, $840; messenger, $300; collector, Ponce, $1,800; clerk, $900; clerk, $600; clerk, $480; messenger, $300; collector, Mayagüez-Hormigueros, $1,800; clerk, $900; clerk, $480; messenger, $240; collector, Arecibo, $1,800; clerk, $720; clerk, $480; messenger, $240; collector, Caguas, $1,200; clerk, $600; collector, Humacao, $1,200; clerk, $600; collector, Guayama, $1,200; clerk, $600; collector, Aguadilla-Moca, $1,200; clerk, $360; collector, Utuado, $1,100; clerk, $360; collector, Bayamón, $1,200; clerk, $360; collector, Yauco, $1,100; clerk, $360; collector, San Germán-Lajas, $1,100; clerk, $360; collector, Río Piedras, $1,100; clerk, $360; collector, Juana Díaz, $1,100; collector, Fajardo, $1,100; collector, Vieques, $900; messenger, $180; collector, Manatí, $900; collector, San Sebastián, $900; collector, Carolina, $900; collector, Lares, $900; collector, Yabucoa, $860; collector, Coamo, $860; collector, Cayey, $860; collector, Río Grande, $860; collector, Cabo Rojo, $860; collector, Aguada-Rincón, $860; collector, Vega Baja, $860; collector, Juncos, $760; collector, Salinas, $760; collector, Naguabo, $760; collector, Patillas, $760; collector, San Lorenzo, $760; collector, Guayanilla, $760; collector, Loíza, $760; collector, Ciales, $760; collector, Las Marías, $760; collector, Arroyo, $760; collector, Vega Alta, $760; collector, Aibonito, $760; collector, Camuy, $720; collector, Quebradillas, $720; collector, Maunabo, $720; collector, Barros, $720; collector, Isabela, $720; collector, Morovis, $720; collector, Sabana Grande, $720; collector, Dorado, $720; collector, Toa Alta, $720; collector, Comerío, $720; collector, Cidra, $720; collector, Jayuya, $720; in all, $59,600.

Stationery and printing, which shall be made in Spanish and in English, $6,000; lighting and water, $100; telephone and telegraph service, $1,200; incidental and traveling expenses, $3,000; postage and express, $3,000; traveling expenses, internal revenue agents, $8,316; care of horses for internal revenue agents, including care, stabling, shoeing, veterinary assistance and medicines, $7,200; traveling expenses, assessors, $4,200; care of horses for assessors, including care, stabling, shoeing, veterinary assistance and medicines, $2,500; in all, $35,516.

Total, Office of the Treasurer, $206,736.

OFFICE OF THE AUDITOR.

Salaries, Office of the Auditor—Auditor's Office proper: Auditor, $4,000; Assistant Auditor, $3,000; secretary and stenographer, $1,600; mail and file clerk, $1,000; messenger, $360; janitor, $360; in all, $10,320.

Division of General Accounts: Chief of Division, $2,300; assistant chief, $1,700; one clerk, $1,500; one clerk, $1,400; clerk, $1,300; two clerks, at $1,200 each, $2,400; two clerks, at $1,100 each, $2,200; two clerks, at $720 each, $1,440; clerk, $480; in all, $14,720.

Division of Property Accounts: Chief of Division, $2,300; clerk, $1,100; clerk, $900; clerk, $720; in all, $5,020.

Provided, That such officials and employees of the Insular Government or branches thereof, as may be designated by the Auditor, with the approval of the head of the department, if any, shall hereafter keep records of all property other than real estate and render reports when requested in such form and manner as the Auditor shall prescribe; *Provided*, *further*, That, for the purpose of creating and maintaining more adequate control of all the property aforementioned, the detailed accounts of the said property in the possession or under the control of any official or employee of the Insular Government or its branches, shall be carried by the Auditor to such extent as he may deem practicable; *Provided*, That all the aforesaid officials and employees shall be required to give bond as provided in Section 119 of the Political Code.

Division of Disbursements and Claims: Chief of Division, $2,300; assistant chief, $1,600; one clerk, $1,400; one clerk, $1,300; clerk, $1,100; two clerks, at $1,100 each, $2,200; clerk, $900; clerk, $840; in all, $11,640.

Division of Audits and Examinations: Chief of Division, $2,300; examiner, $1,800; examiner, $1,800; examiner, $1,800; examiner, $1,700; clerk, $1,200; clerk and stenographer, $1,200; clerk, $1,000; in all, $12,800.

Total, $54,500.

Stationery and printing, $750; telegraph and telephone service, $25; traveling expenses, $3,000; postage and freight, $300; incidentals, $200; in all, $4,275.

Total, Office of the Auditor, $58,775.

OFFICE OF THE COMMISSIONER OF THE INTERIOR.

Salaries, Office of the Commissioner of the Interior—Office of the Commissioner proper: Commissioner, $4,000; Assistant Commissioner, $3,000; secretary and stenographer, $1,500; file clerk and translator, $1,300; two messengers, at $360 each, $720; janitor, $360; *chauffeur*, $540; in all, $11,420.

Contingent expenses, automobile expense, traveling expense, postage and freight, stationery and printing and miscellaneous expenses, $10,000; in all, $10,000.

Salaries, Division of Public Lands and Archives: Chief of the Division, $2,300; clerk and surveyor, $1,300; archivist and librarian, $1,100; in all, $4,700.

Field work, traveling expenses, purchase and repair of instruments, wages and traveling expenses in connection with new surveys, $10,000; in all, $10,000.

Salaries, Division of Harbors and Docks: Chief of Division and Captain of the Port, San Juan, $2,000; captain of the port, Ponce, $1,100; captain of the port Mayagüez, $720; clerk, San Juan, $720; clerk and messenger, San Juan, $360; clerk, Ponce, $360; two signalmen, San Juan, at $300 each, $600; guard for prisoners cleaning bulkheads and docks, San Juan, $360; percentage payments to pilots acting as captains of port at ports other than San Juan, Ponce and Mayagüez, $1,500; in all, $7,720.

Salaries, Division of Disbursements and Accounts: Chief of Division, $2,300; chief clerk, $1,700; bookkeeper, $1,400; storekeeper, $1,100; civil service file clerk, $1,100; clerk, $1,100; three voucher clerks, $900 each, $2,700; watchman, $360; messenger, $360; in all, $12,120.

Salaries, Bureau of Public Works: Superintendent, $3,000; assistant superintendent, $2,200; engineer in charge of municipal work, $2,600; designing engineer, $2,200; assistant engineer, $1,800; assistant engineer, $1,700; chief clerk, $1,300; draftsman, $1,100; draftsman, $840; two draftsmen, at $720 each, $1,440; stenographer and translator, $1,100; stenographer, $1,000; in all, $20,280.

Salaries, Division of Public Buildings: Architect, $2,300; chief draftsman, $1,800; draftsman, $900; superintendent of public buildings, $1,800; two inspectors, at $1,100 each, $2,200; clerk and stenographer, $1,400; in all, $10,400.

Construction, maintenance and repair of public roads; payment of wages, purchase of material, rent of tool sheds and *caminero* houses, construction and repair of roads, bridges, *caminero* houses, bulkheads and embankments, and other necessary expenses other than in the Department of the Interior in San Juan, to be expended in the discretion of the Commissioner of the Interior, either in the direct purchase of material and employment of labor, or in payment on account of contracts entered into by the Commissioner of the Interior, for the maintenance, construction and repair of roads and bridges, or so much thereof as may be necessary, $290,000; in all, $290,000.

Maintenance, care, necessary repairs to and reconstruction of public buildings other than the Executive Mansion, $15,000; water for public buildings, exclusive of the Executive Mansion, $1,500; electric lighting for public buildings, exclusive of the Executive Mansion, $1,550; in all, $18,050.

Salaries, Bureau of Insular Telegraph—Central Office, San Juan: Superintendent, $2,300; clerk and accountant, $1,300; clerk and translator, $900; two clerks, at $480 each, $960; janitor, $300.

Operators: Chief operator, $1,300; operator and clerk, $900; manager, Ponce, $1,000; manager, Mayagüez, $900; three operators, at $900 each, $2,700; four operators, at $840 each, $3,360; six operators, at $720 each, $4,320; seven operators, at $600 each, $4,200; twenty-four operators, at $480 each, $11,520; two relief operators, at $480 each, $960; nine operators, at $360 each, $3,240; clerk, Ponce, $480; two clerks, San Juan, at $360 each, $720; two telephone operators, at $300 each, $600; four telephone operators, at $240 each, $960; six telephone operators, at $180 each, $1,080; eight telephone operators, at $120 each, $960; messenger, $300; two messengers, at $240 each, $480; six messengers, at $180 each, $1,080; seven messengers, at $120 each, $840; fifty-two messengers, at $60 each, $3,120.

Maintenance of lines: Chief lineman, $900; two linemen, at $720 each, $1,440; eleven linemen, at $480 each, $5,280; in all, $58,400.

Office rent, light, purchase of material, instruments, etc., necessary incidental expenses, transportation and subsistence for employees, freight, postage, printing and stationery, purchase, maintenance or hire of horses and oxen for use of linemen, $12,750; in all, $12,750.

Total, Commissioner of the Interior, $465,840.

OFFICE OF THE COMMISSIONER OF EDUCATION.

Salaries, Office of the Commissioner of Education—Office of the Commissioner proper: Commissioner, $4,000; Assistant Commissioner, $3,000; secretary and stenographer, $1,500; stenographer and clerk, $1,300; janitor and copyist, $480; messenger, $360; messenger, $360; in all, $11,000.

School Board Accounts: Chief, $2,300; clerk and bookkeeper, $1,100; clerk and stenographer, $900; clerk, $1,100; in all, $5,400.

Accounts and Records: Chief, $2,300; clerk, $1,500; clerk and stenographer, $1,300; clerk, $1,300; clerk, $1,100; clerk, $900; clerk, $1,100; clerk, $900; clerk, $600; messenger, $360; in all, $11,360.

Division of Supervision: Three general superintendents, at $1,800 each, $5,400; superintendent of Spanish language, $1,800; in all, $7,200.

Stationery, printing, office supplies, cablegrams, telegrams, traveling expenses, minor repairs and other incidental expenses, $9,000; postage, $1,500; in all, $10,500.

Salaries, Common Schools: For ten principals at $75 per month each, for nine months, $6,750; for one hundred and ten (110) teachers of English at $75 per month, each, for nine months, $74,250; for eight hundred and twenty-five (825) Spanish or English graded teachers at $60 per month each, for nine months, $445,500; for thirteen hundred and twenty-five (1,325) rural teachers at $38 per month each, for nine months, $453,150; for two supervising principals at $1,500 per year each, $3,000; for three supervising principals at $1,300 per year each, $3,900; for thirty-six supervising principals at $1,100 per year each, $39,600; fifty continuation teachers at $80 per month each, for nine months, $36,000; extra compensation to one hundred graded teachers as acting principals at five dollars per month each for nine months, $4,500; *Provided*, That for the purpose of compensation vacation periods authorized by the Commissioner of Education shall be considered as days of actual service in the school month in which they occur; in all, $1,066,650.

For local transportation, storage and distribution of school equipment, school books and school supplies, minor repairs to school buildings, traveling expenses of teachers rendering service in more than one town, printing of forms, etc., for use in schools and school banks, correcting and examination of papers, sundries and incidentals, $6,000; in all, $6,000.

Textbooks and school supplies: For the purchase of school textbooks, school equipment and school supplies, and for freight and insurance charges on same, $50,000; in all, $50,000.

Provided, That school textbooks and supplies shall be furnished free of charge to the pupils of the public schools up to and including the eighth grade, and the Commissioner of Education may authorize the sale of school textbooks to pupils in accordance with rules and regulations to be made by him; *And provided, further*, That after July 1, 1915, the pupils of all high and continuation schools shall provide their own textbooks and supplies in accordance with rules and regulations to be made by the Commissioner of Education.

Salaries, High Schools: For principals, assistant principals, teachers and janitors, $53,845; in all, $53,845.

Contingent expenses, High Schools: For equipment, supplies, water, electricity and incidentals, $5,000; in all, $5,000.

Instruction and training of young men from Porto Rico in the United States: For the instruction of young men sent to the United States from Porto Rico, in subjects determined by the Commission authorized by Sections 68, 69 and 70 of the Codified School Law, approved March 12, 1903, at $500 (7), $3,500; in all, $3,500.

Technical education of Porto Rican students in the United States: For the instruction of young men and women sent from Porto Rico to the United States, in the various arts and trades, under authority of Sections 71 to 77, inclusive, of the Codified School Law, approved March 2, 1903, at $250 (13), $3,250; in all, $3,250.

Education of Porto Rican women in the United States: For the education of young women sent from Porto Rico to the United States, in subjects determined by the Commission authorized by an Act to provide for the education of a certain number of young Porto Rican women in the United States, approved March 12, 1908, at $500 (3), $1,500; in all, $1,500.

Total, Department of Education, $1,235,205.

UNIVERSITY OF PORTO RICO.

For support and maintenance of the Normal Department, Colleges of Law, Pharmacy and Liberal Arts, and the College of Agriculture and Mechanic Arts of the University of Porto Rico, including deans' salaries, salaries of teachers, salaries of janitors, purchase of apparatus, equipment, textbooks and supplies; for the improvement of grounds and athletic fields; for supplies, stationery, stamps, cablegrams, traveling expenses, of the president of the board of trustees and of the members thereof, and other necessary incidental expenses; *Provided*, That the total amount to be spent at the College of Agriculture and Mechanic Arts at Mayagüez from all available funds to be assigned by the board of trustees shall not be less than $40,000, $35,000; in all, $35,000.

INSULAR LIBRARY OF PORTO RICO.

Salaries, Insular Library of Porto Rico: Librarian, $1,500; assistant librarian, $1,200; cataloguer, $900; clerk, $720; clerk, $600; historian, $1,500; janitor, $300; in all, $6,720.

Lighting, incidentals, books, periodicals, newspapers and binding books (provided that at least one-half of the amount shall be expended in books, periodicals and newspapers, of which amount at least one-half shall be expended in books, periodicals and newspapers in the Spanish language), furniture, etc., $3,300; in all, $3,300.

Total, Insular Library of Porto Rico, $10,020.

GOVERNMENT OF THE ISLAND OF CULEBRA.

Salaries, Government of the Island of Culebra: Alcalde, $720; municipal physician, $600; secretary, $400; watchman, $360; two teachers, at $60 each per school month for nine months, $1,080; in all, $3,130.

Contingent expenses, Government of the Island of Culebra, $750; in all, $750.

Total, Government of the Island of Culebra, $3,910.

OFFICE OF LABOR, CHARITIES AND CORRECTION.

Salaries, Office of Labor, Charities and Correction—Office of the Director proper: Director of Labor, Charities and Correction, compensation in addition to that received by him as a member of the Executive Council, $1,500; assistant director, $3,000; chief clerk and translator, $1,700; stenographer and typewriter, $1,200; janitor, $420; messenger, $360; in all, $8,180.

Office of Files and Records: File clerk, $900; assistant file clerk, $480; in all, $1,380.

Bureau of Labor: Chief of Bureau, $2,300; assistant chief, $1,800; chief clerk and statistician, $1,200; stenographer, $1,200; clerk, $900; messenger, $360; two investigators, at $900 each, $1,800; in all, $9,560.

Stationery and printing, $2,000; telephone and telegraph service, $100; traveling expenses, $2,000; postage and freight, $900; incidentals, $200; in all, $5,200.

Office of Charities: Chief clerk and visiting inspector for the charitable institutions under regulations by the Director with the approval of the Executive Council, $1,500; clerk and translator, $1,100; clerk, $600; in all, $3,200.

Office of Prisons: Chief clerk and visiting inspector for the penal institutions under regulations by the Director with the approval of the Executive Council, $1,600; clerk and translator, $1,100; clerk, $900; clerk, $800; clerk, $700; in all, $5,100.

Office of Accounts: Chief, $1,600; purchasing clerk and bookkeeper, $1,500; clerk and personnel record keeper, $1,100; voucher clerk, $1,100; examiner of bills and other services, $1,100; clerk, $720; clerk, $1,200; in all, $8,320.

Traveling expenses, $720; transportation of prisoners, $700; lighting, $160; stationery and printing, $1,500; postage and freight, $300; telephone and telegraph service, $450; incidentals, $300; in all, $4,130.

CHARITABLE INSTITUTIONS.

Salaries, Blind Asylum: Oculist, $1,200; manager, $1,100; *practicante*, $600; clerk and storekeeper, $600; matron, $360; night watchman, $300; cook, $240; two attendants, at $240 each, $480; six attendants, at $180 each, $1,080; servant, $144; fourteen servants, at $96 each, $1,344; assistant matron, $240; barber, $240; in all, $7,928.

For subsistence of patients and not exceeding 32 employees, at not exceeding 16 cents per diem each, $6,500; clothing and bedding, $900; unexpendable property purchases, $100; medical supplies, $600; fuel, $500; incidentals, $300; water and lighting, $700; transportation of patients both ways, $500; in all, $10,100.

Salaries, Insane Asylum: Superintendent, $2,300; assistant superintendent, $1,800; physician, $1,100; clerk and storekeeper, $900;

matron, $600; head attendant, $500; attendant, $480; two attendants, at $360 each, $720; janitor, $360; superintendent of kitchen, $360; carpenter, $360; mason, $360; porter, $300; three attendants, at $300 each, $900; seven attendants, at $240 each, $1,680; seven attendants, at $180 each, $1,260; servant, $168; five servants, at $144 each, $720; nineteen servants, at $144 each, $2,736; in all, $17,604.

For subsistence for patients and not exceeding 56 employees, at not to exceed 17 cents per diem each, $22,000; clothing and bedding, $2,000; fuel, $1,000; incidentals, $200; water and lighting, $2,000; medicines and supplies, $1,000; transportation of patients, $500; unexpendable property purchases, $100; in all, $28,800.

Provided, That any moneys received by the Insane Asylum from pay-patients shall be deposited in the Treasury of Porto Rico to the credit of the appropriation "Contingent Expenses, Insane Asylum," being equally divided between the sub-head "Subsistence" and the sub-head "Clothing, bedding, etc.," and shall be available for expenditure during the fiscal year in which it is received.

Salaries, Girls' Charity School: Superintendent, $1,500; clerk, $900; teacher and pianist, $780; three teachers, at $720 each, $2,160; teacher of cooking, $360; visiting inspectress; *Provided*, That the inspectress shall visit each department of school at least once each week, and report monthly to the head of the department, $480; matron, $500; janitor, $360; infirmarian, $240; teacher of straw-work, $360; milliner, $360; drawn-work teacher, $360; storekeeper, $300; superintendent of clothing, $240; two dressmakers, at $240 each, $480; seamstress, $240; shoemaker, $240; porter and gardener, $240; cook, $180; laundress, $240; assistant cook, $144; six servants, at $96 each, $576; in all, $11,240.

For subsistence not exceeding 175 inmates and 29 employees, at not to exceed 15 cents per diem each, $11,400; clothing and bedding, $2,000; textbooks and school supplies, $300; unexpendable property, $200; medicines, $350; fuel, $1,200; incidentals, $400; water and lighting, $1,100; in all, $16,950.

Provided, That any moneys received by the Girls' Charity School from the sale of articles made by the girls shall be deposited in the Treasury of Porto Rico in special trust fund, to be known as "Sale of Articles, Girls' Charity School, Trust Fund," and shall be available for the purchase of raw material for future similar work and for the payment of small amounts to the girls upon leaving the school, which payments shall be in accordance with such general rules as the Director of Labor, Charities and Correction shall prescribe to govern such cases.

Salaries, Boys' Charity School: Superintendent, $1,800; clerk, $900; storekeeper, $720; six teachers, for scholastic instruction, at $720 each, $4,320; teacher of carpentry and cabinet making, $900; teacher of painting and drawing, $720; teacher of masonry, $600; teacher of sanitary plumbing, $600; teacher of shoemaking, $600; inspector of monitors and servants in charge of the account books of the workshops and property clerk, $820; bandmaster and music teacher (for Boys' and Girls' Charity Schools), $900; instructor of gymnastics and athletic games, $720; monitor and military instructor, $480; monitor, $360; monitor, $360; monitor, $360; head servant in charge of general cleaning, $600; four servants, at $120 each, $480; two servants, at $144 each, $288; nurse (graduated), $480; tailor,

$600; matron, $360; porter and messenger, $360; matron for small boys, $360; cook, $300; assistant cook, $120; night watchman, $360; gardener and horticulturist, $360; chief laundress, $240; five laundresses, at $108 each, $540; seven seamstresses, at $108 each, $756; in all, $21,364.

For subsistence for not exceeding 275 inmates and 37 employees and breakfast for 17 employees at not to exceed 15 cents per diem each, $17,700; clothing and bedding, $4,000; textbooks and school supplies, $300; unexpendable property, $200; medicines, $600; fuel, $1,000; incidentals, $300; equipment and supplies for industrial teaching, $1,000; water, $900; lighting, $750; in all, $26,750.

Provided, That any moneys received by the Boys' Charity School from the sale of articles made and work done inside or outside of the institution by the boys shall be deposited in the Treasury of Porto Rico in a trust fund to be known as "Sale of articles and work done, Boys' Charity School, Trust Fund," and shall be available for the purchase of raw material for future similar work and for the payment of small amounts or presentation of instruments and tools of art and trade to the boys upon leaving the school, which payment or presentation shall be in accordance with such general rules as the Director of Labor, Charities and Correction shall prescribe to govern such cases; *Provided*, That 50 per cent of the receipts from band concerts shall be placed in a special trust fund, known as "Recreation Fund," to be expended for library books, athletics and amusements.

For all institutions under the Department of Labor, Charities and Correction: Dentist, $1,400; oculist, $1,200; medical inspector and visiting physician to the Boys' and Girls' Charity Schools, $1,200; in all, $3,800.

Penal Institutions—Salaries, Penitentiary: Warden, $1,800; deputy warden, $1,400; storekeeper, $900; clerk, $1,100; physician, $900; *practicante*, $600; master shoemaker, $660; master tailor, $660; master carpenter, $720; sergeant, $720; four corporals, at $480 each, $1,920; eighteen guards, at $408 each, $7,344; in all, $18,724.

For food for prisoners at not to exceed 13 cents each per diem, with not to exceed 4 cents per ration additional for sick prisoners, $25,008; clothing for prisoners of the penitentiary and all district jails at no more than $6 each, $6,000; saving fund for discharged prisoners, $2,500; medicines, $800; unexpendable property, $300; fuel, $500; incidentals, $2,400; water, $1,100; lighting $1,200; telephone and telegraph service, $87; postage and freight, $110; in all, $40,005.

Provided, That any moneys received by the Penitentiary from the sale of articles made by the prisoners therein shall be deposited in the Treasury of Porto Rico in a trust fund, to be known as "Sale of articles, Penitentiary, Trust Fund," and shall be available for the purchase of raw materials for future similar work.

Salaries, San Juan and Arecibo district jails—Provided, That all male prisoners for the judicial district of San Juan shall be sent to serve their terms to the referred to jail at Arecibo; *Provided, further*, That there shall be in San Juan three wards annexed to the Penitentiary: one for summary prisoners from the judicial district of San Juan, one for condemned women from both districts, and the third for minors from all jails: Jailer at Arecibo, $900; physician at Arecibo, $500; *practicante* at Arecibo, $360; clerk at Arecibo, $420; deputy jailer at San Juan, $600; physician at San Juan wards, $300; *practicante* at San Juan wards, $480; clerk at San Juan wards and attendant at the wards for minors, $480; teachers for the ward for minors, $360; three corporals, at $480 each, $1,440; fifteen guards, at $408 each, $6,120; in all, $11,960.

For food for prisoners at not to exceed 13 cents per diem each, with not to exceed 4 cents per ration additional for sick prisoners (in Arecibo and San Juan), $16,495; lighting and water, $1,575; telephone and telegraph service, $160; postage and freight, $30; medicines, surgical instruments, soap, furniture, repairs and other incidental expenses, $1,854; in all, $20,114.

Salaries, Ponce Jail: Jailer, $900; physician, $540; *practicante*, $420; clerk, $420; two corporals, at $480 each, $960; eight guards, at $408 each, $3,264; in all, $6,504.

For food for prisoners at not to exceed 13 cents per diem each, with not to exceed 4 cents per ration additional for sick prisoners, $8,270; lighting and water, $600; telephone and telegraph service, $75; postage and freight, $50; medicines, surgical instruments, soap, repairs and other incidental expenses, $500; in all, $9,495.

Salaries, Mayagüez Jail: Jailer, $900; physician, $420; *practicante*, $360; clerk, $420; two corporals, at $480 each, $960; eight guards, at $408 each, $3,264; in all, $6,324.

For food for prisoners at not to exceed 13 cents per diem each, with not to exceed 4 cents per ration additional for sick prisoners, $6,171; lighting and water, $600; telephone and telegraph service, $75; postage and freight, $37; medicines, surgical instruments, soap, printing, $701; in all, $7,584.

Salaries, Humacao Jail: Jailer, $720; physician, $420; *practicante*, $360; clerk, $420; two corporals, at $480 each, $960; eight guards, at $408 each, $3,264; in all, $6,144.

For food for prisoners at not to exceed 13 cents per diem, with not to exceed 4 cents per ration additional for sick prisoners, $8,380; lighting and water, $430; telephone and telegraph service, $75; postage and freight, $46; medicines, surgical instruments, soap, oil, furniture, repairs and other incidental expenses, $600; in all, $9,531.

Salaries, Guayama Jail: Jailer, $720; physician, $420; *practicante*, $360; clerk, $420; two corporals, at $480 each, $960; six guards, at $408 each, $2,448; in all, $5,328.

For food for prisoners at not to exceed 13 cents per diem each, with not to exceed 4 cents per ration additional for sick prisoners, $6,347; lighting and water, $340; telephone and telegraph service, $70; postage and freight, $40; medicines, surgical instruments, soap, furniture and other incidental expenses, $410; in all, $7,207.

Salaries, Aguadilla Jail: Jailer, $720; physician, $360; *practicante*, $300; clerk, $420; corporal, $480; six guards, at $408 each, $2,448; in all, $4,728.

For food for prisoners at not to exceed 13 cents per diem each, with not to exceed 4 cents per ration additional for sick prisoners, $4,073; rent for jail building, $720; lighting and water, $70; telephone and telegraph service, $60; postage and freight, $30; medicines, surgical instruments, soap, furniture and other incidental expenses, $375; in all, $5,328.

Salaries, Reform School for Juvenile Delinquents: Director, $1,100; school teacher, $720; rural teacher, $480; two teachers, at $600 each,

$1,200; master carpenter, $720; clerk and storekeeper, $720; clerk, $480; visiting physician, $720; *practicante* and infirmarian, $720; machinist-electrician, $720; music teacher, $600; two corporals, at $540 each, $1,080; eight guards, at $408 each, $3,264; cook, $240; cart-driver, $240; messenger, $180; in all, $13,184.

For subsistence of inmates and employees, at 13 cents per capita, with not to exceed 4 cents per ration for sick inmates, $6,865; equipment for school building and farm, $1,000; lighting and water, $500; for the purchase of an electric accumulator, $1,000; telegraph and telephone service, $62; transportation and care of animals, $240; postage and freight, $35; clothing, fuel, medicines, bedding, and other incidental expenses, $2,803; in all, $12,505.

Total, Department of Labor, Charities and Correction, $374,271.

INSULAR POLICE OF PORTO RICO.

Salaries, Insular Police: Chief, $3,000; secretary and stenographer, $1,500; chief of detectives, $1,400; voucher clerk, $1,200; storekeeper and bookkeeper, $1,100; file clerk, $1,100; clerk and translator, $900; *chauffeur*, $720; clerk, $600; in all, $11,520.

District Chiefs: Three first class, at $1,700 each, $5,100; four second class, at $1,600 each, $6,400; four third class, at $1,200 each, $4,800; four fourth class, at $1,100 each, $4,400; four fifth class, at $1,000 each, $4,000; four sixth class, at $900 each, $3,600; twenty-seventh class, at $780 each, $15,600; twenty-four eighth class, at $750 each, $18,000; fifteen sergeants, at $700 each, $10,500; forty corporals, at $600 each, $24,000; six hundred guardsmen, at $456 each, $273,600; in all, $370,000.

Provided, That Section 13 of the Insular Police Law of 1908 is hereby repealed, and future enlistments and reenlistments shall be made in accordance with such regulations as may be prescribed by the Insular Police Commission and approved by the Governor.

Stationery and printing, $2,500; lighting and water, $3,800; telephone and telegraph services, $3,000; rent of quarters, $12,000; transportation, $6,000; care of animals, $7,500; automobile supplies and repairs, $2,000; unexpendable property purchases, $1,500; postage and freight, $850; secret and confidential services, $1,000; incidental expenses, $2,000; in all, $42,150.

Total, Insular Police of Porto Rico, $423,670.

OFFICE OF SANITATION SERVICE.

Salaries, Office of the Director of Sanitation—Director's Office proper: Director, $4,000; assistant director, $3,000; medical secretary in charge of the work of the Insular Board of Health, $2,200; two veterinary inspectors, at $1,300 each, $2,600; stenographer, $1,500; file clerk, $1,300; stenographer, $1,200; *chauffeur*, $540; clerk $480; messenger, $360; janitor, $360; telephone operator, $360; fees of the Insular Board of Health, $1,000; in all, $18,900.

Division of Property and Accounts: Chief of Division, $2,300; bookkeeper, $1,600; clerk, $1,200; clerk, $900; in all, $6,000.

Division of Sanitary Engineering: Sanitary Engineer, $2,500; Assistant Sanitary Engineer, $1,600; two plumbing inspectors, at $1,300 each, $2,600; stenographer, $1,200; draftsman, $1,100; in all, $9,000.

Division of Transmissible Diseases and Bacteriological Laboratory: Chief of Division, $2,300; laboratory director, $1,800; bacteriologist, $1,300; pharmacist, $1,000; clerk, $900; laboratory assistant, $600; janitor, $360; in all, $8,260.

Division of Chemical Laboratory: Chemical director, $2,300; chemist, $1,500; two food and drug inspectors, at $1,400 each, $2,800; pharmacist, $1,200; assistant chemist, $1,100; clerk, $600; janitor, $360; in all, $9,860.

Chemicals and disinfectants, $500; lighting and water, $200; postage and freight, $1,500; purchase of vaccine and serums, $1,000; stationery and printing, $1,500; supplies and equipment, bacteriological laboratory, $1,000; supplies and equipment, chemical laboratory, $1,000; telephone and telegraph service, $960; traveling expenses, including maintenance of automobiles, $2,000; incidentals: miscellaneous supplies, toilet articles, ice, repairs to office furniture and typewriters and for other minor office expenses, $500; in all, $10,160.

Total, Office of the Director of Sanitation, $62,180.

Leper Colony—Salaries, Leper Colony: Resident minor surgeon, $900; attendant, $360; attendant, $240; two watchmen, at $300 each, $600; two boatmen, at $180 each, $360; gardner, $120; three laundresses, at $150 each, $450; cook, $180; cook, $96; in all, $3,306.

Subsistence: Maintenance of 39 patients and 13 employees at 30 cents per day each, $5,475; clothing and bedding, $2,000; unexpendable property purchases, $500; incidentals: fuel, ice, etc., $630; in all, $8,605.

In all, Leper Colony, $11,911.

Salaries, Quarantine Hospital: Superintendent, $480; nurse, $120; attendant, $240; cook, $96; servant, $96; in all, $1,032.

Subsistence: Maintenance of patients and employees, $700; lighting and water, $200; incidentals, $100; in all, $1,000.

In all, Quarantine Hospital, $2,032.

Salaries, field force, $66,000; in all, $66,000.

Killing and burying animals, $300; labor, including maintenance of animals and equipment, materials, purchase of equipment, $12,000; light and water, $600; postage and freight, $800; rent, $1,780; telephone and telegraph service, $200; traveling expenses, $6,000; in all, $21,680.

In all, field force, $87,680.

To continue the campaign against anemia in Porto Rico under the direction of the Director of Sanitation all disbursements to be made upon the approval of the Director of Sanitation, $8,000; in all, $8,000.

Total, Sanitation Service, $171,803.

Provided, That medical members of the Service of Sanitation may practice their profession when it does not interfere with their duties; *And, Provided further,* That the city physicians of each one of the municipalities of the island are hereby required to perform such sanitary service as may be assigned to them by the Director of Sanitation within his jurisdiction under rules laid down by an ordinance of the Municipal Council, which must be approved by the Director of Sanitation, and such rules so approved shall be included as a condition of the duties of said city physicians in the contracts made by them with the municipalities; *Provided,* Said city physicians shall receive additional compensation for sanitation service rendered by them, which compensation shall be fixed by the Director of Sanitation with the approval of the Executive Council, but the same shall not exceed $300 a year and shall be paid from the appropriation of $66,000 for "Salaries, Field Force."

INSTITUTE OF TROPICAL MEDICINE AND HYGIENE OF PORTO RICO.

To pay for the current expenses of the Institute of Tropical Medicine and Hygiene of Porto Rico, created by an Act approved March 13, 1912, for the installation of its offices, purchase of instruments, apparatus and books for all the purposes of its development, including its scientific expeditions to different parts of the island, the maintenance of dispensaries, payment of fees for patients submitted to observation in municipal or insular hospitals, purchase of medicines and utensils, payment of salaries and incidental expenses, $11,000; in all, $11,000.

Total, Institute of Tropical Medicine and Hygiene of Porto Rico, $11,000.

BOARD OF COMMISSIONERS OF AGRICULTURE.

For the Board of Commissioners of Agriculture for the continuance of the work of the board as specified in Joint Resolution No. 13, approved March 28, 1914, $15,000; in all, $15,000.

Total, Board of Commissioners of Agriculture, $15,000.

DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF PORTO RICO.

Salaries: Judge, $5,000; district attorney, $4,000; marshal, $3,500; clerk of the court, $2,500; court stenographer, $2,000;[1] chief deputy marshal, $2,000; deputy marshal, San Juan, $1,800; deputy marshal, Ponce, $1,500; deputy marshal, Mayagüez, $1,500; deputy clerk and stenographer, $1,500; deputy clerk, San Juan, $1,200; deputy clerk, San Juan, $1,200; deputy clerk, Ponce, $1,200; deputy clerk, Mayagüez, $1,200; stenographer to judge, $1,500; interpreter and translator, $1,800; messenger to judge, $480; messenger, San Juan, $480; messenger, marshal's office, San Juan, $240; messenger and janitor, Ponce, $360; messenger and janitor, Mayagüez, $360; in all, $35,320.

Purchase of law books, $400; traveling expenses of marshals and deputy marshals in serving processes, $900; incidental expenses of the court, $1,200; traveling expenses of the court, $1,000; incidental expenses of judge's office, $100; incidental expenses of district attorney's office, $250; pay to bailiffs, $350; in all, $4,200.

Fees and mileage of witnesses, United States Court, $1,000; fees and mileage of jurors, $5,000; fees of United States Commissioners, $400; in all, $6,400.

Total, United States District Court of Porto Rico, $45,920.

INSULAR COURTS.

Salaries, Insular Courts.—Supreme Court of Porto Rico: Chief justice, $5,000; four associate justices, at $4,500 each, $18,000; *fiscal*, $3,500; marshal, $3,000; secretary and reporter, $2,500; assistant secretary and reporter, $2,000; English and Spanish stenographer,

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[1] This appropriation is made upon the express condition that no charge shall be made against The People of Porto Rico for services of any character, in reporting cases, making transcript of records, or otherwise.

$1,500; interpreter and translator, $1,600; stenographer, $1,100; deputy secretary, $1,200; stenographer for *fiscal*, $1,300; typewriter, $1,100; typewriter, $1,000; typewriter, $900; janitor, $580; two bailiffs, at $460 each, $920; in all, $45,200.

For office supplies, stationery, postage and other necessary incidental expenses, $1,000; purchase of law books, $300; water, $20; lighting, $50; in all, $1,370.

Publication of the Decisions of the Supreme Court.—Salaries, publication of the Decisions of the Supreme Court: Translator, $1,700; property clerk, $1,200; Spanish proofreader and clerk, $1,200; English proofreader and clerk, $1,200; Spanish proofreader, $900; in all, $6,200.

For office supplies, stationery, postage, printing and binding of "Porto Rico Reports" and "Decisiones de Puerto Rico," and other necessary incidental expenses, $6,000. For the publication of advance sheets containing the decisions of the Supreme Court in the order in which they are rendered, $1,000.

The publication of the decisions of the Supreme Court of Porto Rico shall be in two editions, one in English and the other in Spanish, each of not more than 750 copies, which shall be sold at cost. Only those decisions of the Supreme Court as are accompanied by opinions shall be inserted in such editions; in all, $7,000.

Total, Supreme Court of Porto Rico, $59,770.

District Court of San Juan.—Section 1: Judge, $4,000; secretary, $1,800; deputy secretary and interpreter, $1,100; deputy secretary, $1,100; deputy secretary and file clerk, $900; stenographer, $1,100; stenographer, $600.

Section 2: Judge, $4,000; secretary, $1,800; deputy secretary, $1,100; stenographer, $1,100; clerk, $900; *fiscal*, $3,500; assistant *fiscal*, $2,300; stenographer for the *fiscal*, $900; marshal, $1,700; first deputy marshal, $900; first deputy marshal, $900; two second deputy marshals, at $480 each, $960; janitor, $480; messenger, $360; in all, $31,500.

Provided, That the assistant *fiscal* of the District Court of San Juan, Section 2, shall also act as a law officer of the Office of the Attorney General when the Attorney General requires him so to do.

District Court of Ponce: Judge, $3,750; *fiscal*, $3,500; secretary $1,700; deputy secretary, file clerk and interpreter, $1,100; deputy secretary, $900; marshal, $1,700; second deputy marshal, $480; deputy marshal, $900; stenographer, $1,100; stenographer for the *fiscal*, $600; clerk, $900; janitor, $360; in all, $16,990.

District Court of Mayagüez: Judge, $3,750; *fiscal*, $3,500; secretary, $1,700; deputy secretary, file clerk and interpreter, $1,100; marshal, $1,700; deputy marshal, $900; second deputy marshal, $480; stenographer, $1,100; stenographer for the *fiscal*, $480; janitor, $360; in all, $15,070.

District Court of Arecibo: Judge, $3,500; *fiscal*, $3,300; secretary, $1,700; deputy secretary, file clerk and interpreter, $1,100; marshal, $1,700; deputy marshal, $900; second deputy marshal, $480; stenographer, $1,100; typewriter for the *fiscal*, $360; janitor, $360; in all, $14,500.

District Court of Humacao: Judge, $3,500; *fiscal*, $3,300; secretary, $1,700; deputy secretary, file clerk and interpreter, $1,100; marshal, $1,700; deputy marshal, $900; second deputy marshal, $480;

stenographer, $1,100; stenographer for the *fiscal*, $480; janitor, $360; in all, $14,620.

District Court of Guayama: Judge, $3,500; *fiscal*, $3,300; secretary, $1,700; deputy secretary, file clerk and interpreter, $1,100; marshal, $1,700; deputy marshal, $900; second deputy marshal, $480; stenographer, $1,100; typewriter for the *fiscal*, $360; janitor, $360; in all, $14,500.

District Court of Aguadilla: Judge, $3,500; *fiscal*, $3,300; secretary, $1,700; deputy secretary, file clerk and interpreter, $1,100; marshal, $1,700; deputy marshal, $900; second deputy marshal, $480; stenographer, $1,100; typewriter for the *fiscal*, $360; janitor, $360; in all, $14,500.

Purchase of law books, $700; postage, $500; office supplies, and other necessary incidental expenses for the seven district courts, to be expended by the Attorney General, $5,000; water for the district courts, $250; lighting for the district courts, $250; rent of courthouses, district courts, Humacao, at $720; Guayama, at $840; and Aguadilla, at $600, $2,160; traveling expenses, judges and *fiscals* of the district courts, including per diem, $2,000; care of horses for the marshals and deputy marshals for serving citations in both civil and criminal matters, in their respective judicial districts, at not exceeding $5 per month each, $1,320; traveling expenses for marshals and deputy marshals of district courts outside of their respective judicial districts; *Provided*, That no payment shall be made on account of hire of coaches or horses, except when the coaches or horses are hired for the transportation of prisoners, $200; autopsies, district courts, $1,000; fees of witnesses testifying before the district courts and *fiscals*, $20,000; fees of jurors and incidental expenses of jury procedure in the district courts, at not to exceed $1.50 per day for each juror, $22,000; in all, $55,380.

Total, Insular Courts, $236,830.

REGISTRARS OF PROPERTY.

Salaries, Registrars of Property—Office at San Juan (two sections): Two registrars, at $2,750 each, $5,500; two officers, at $1,100 each, $2,200; officer, $900; seven clerks, at $600 each, $4,200; in all. $12,800.

Provided, That the Attorney General shall assign the employees of the Registry of Property of San Juan to duty in Section 1 and Section 2 of said registry, according to the necessity of the business thereof.

Office at Ponce: Registrar, $2,750; officer, $900; four clerks, at $480 each, $1,920; in all, $5,570.

Office at Mayagüez: Registrar, $2,750; officer, $900; three clerks, at $480 each, $1,440; in all, $5,090.

Office at Arecibo: Registrar, $2,750; officer, $900; three clerks, at $480 each, $1,440; in all, $5,090.

Office at San Germán: Registrar, $2,500; officer, $600; two clerks, at $480 each, $960; in all, $4,060.

Office at Humacao: Registrar, $2,500; officer, $600; two clerks, at $480 each, $960; in all, $4,060.

Office at Caguas: Registrar, $2,000; officer, $600; two clerks, at $480 each, $960; in all, $3,560.

Office at Guayama: Registrar, $2,500; officer, $600; two clerks, at $480 each, $960; in all, $4,060.

Office at Aguadilla: Registrar, $2,000; officer, $600; clerk, $480; in all, $3,080.

For office supplies, stationery, furniture, blank books, and other incidental expenses, including postage for ten registrars of property, to be purchased and supplied by the Attorney General of Porto Rico, $2,800; rent of office for two sections at San Juan, Guayama and Ponce, at $360 each; Mayagüez, Arecibo and Caguas at $300 each; San Germán, Humacao and Aguadilla, at $240, $3,060; in all, $5,860.

Total, Registrars of Property, $53,230.

Salaries, municipal courts: For municipal judges of the courts of San Juan, Ponce, Mayagüez, Arecibo, and Bayamón, at $1,700 each, $8,500; for municipal judges of the courts of Aguadilla, Utuado, Manatí, Coamo, Guayama, Cayey, Humacao, Vieques and Fajardo, at $1,400 each, $12,600; for municipal judges of the courts of Carolina, Añasco, San Germán, Cabo Rojo, Yauco, Barros, San Lorenzo, Salinas, Vega Baja, Lares, Adjuntas, Caguas, San Sebastián, Yabucoa, Juana Díaz, Patillas, Río Grande, Río Piedras, Ciales and Camuy, at $1,100 each, $22,000; secretaries of the municipal courts of San Juan and Ponce, at $1,100 each, $2,200; secretaries of the municipal courts of Mayagüez, Bayamón, Arecibo, Utuado, Manatí, Aguadilla, Coamo, Guayama, Fajardo and Humacao, at $900 each, $9,000; secretaries of the municipal courts of Carolina, Vega Baja, Lares, Añasco, San Germán, Cabo Rojo, Yauco, Barros, Cayey, Caguas, San Lorenzo, Adjuntas, San Sebastián, Salinas, Vieques, Juana Díaz, Patillas, Río Grande, Yabucoa, Río Piedras, Ciales and Camuy, at $720 each, $15,840; deputy secretaries of the municipal courts of San Juan, Ponce, Mayagüez and Bayamón, at $600 each, $2,400; marshals of the municipal courts of San Juan, Ponce, Mayagüez, Arecibo and Guayama, at $1,100 each, $5,500; marshals of the municipal courts of Bayamón, Utuado, Manatí, Aguadilla, Coamo and Humacao, at $900 each, $5,400; marshals of the municipal courts of Carolina, Vega Baja, Lares, Añasco, San Germán, Cabo Rojo, Yauco, Barros, Cayey, Caguas, Fajardo, San Lorenzo, Adjuntas, San Sebastián, Salinas, Vieques, Yabucoa, Juana Díaz, Patillas, Río Piedras, Ciales, Camuy and Río Grande, at $720 each, $16,560; in all, $100,000.

Office supplies, stationery and other necessary incidental expenses for the 34 municipal courts, to be expended by the Attorney General, $5,000.

Provided, That every municipality having a municipal court shall furnish suitable quarters, with the approval of the Attorney General, for the offices of the court and for the performance of all its necessary duties.

Traveling expenses of municipal court officials, including a per diem of $1.50 in connection with the trial of cases outside of the capitals of the district, $3,000; care of horses for the marshals of municipal courts for serving citations, both civil and criminal, in their respective judicial districts, at not to exceed $8.20 per month each, $3,346; traveling expenses of marshals of municipal courts outside of their respective judicial districts; *Provided,* That no payment shall be made on account of hire of coaches or horses, except when the coaches or horses are hired for transportation of prisoners, $1,400; for fees of witnesses and medical experts, municipal courts, $1,000.

Provided, That physicians, who are insular or municipal officials, shall perform, free of charge, services as medical experts, when they may be required to perform said services by the court.

For fees of medical experts, in cases of lunacy, provided by Act No. 26, approved March 7, 1912; *Provided*, That physicians who are insular or municipal officers shall perform free of charge this service, when they be required to perform such services by the court, $500; in all, $14,246.

Total, Municipal Courts, $114,246.

CIVIL SERVICE COMMISSION.

Salaries, Civil Service Commission: Chairman and Examiner, $2,700; per diem for two members of the Commission at the rate of $5 per capita for each meeting they attend not exceeding five meetings per month, $600; chief clerk and assistant examiner, $1,300; file clerk, $720; clerk, $480; messenger, $360; in all, $6,160.

For printing, telephone, telegrams, postage, freight and other incidental expenses, $760; in all, $760.

Total, Civil Service Commission, $6,920.

MISCELLANEOUS EXPENDITURES.

Subvention to the "Liga Anti-Tuberculosa de Puerto Rico," to be paid in twelve parts, for the maintenance of its hospital and sanatorium and for the prevention of tuberculosis in Porto Rico, $10,000; subvention to the "Liga Anti-Tuberculosa de Ponce," payable in twelve equal parts, per annum, $4.000; subvention to the Ponce Asylum for Orphans, payable in one-twelfth parts, $1,200; relief of the minor children of Román Baldorioty de Castro, in accordance with the Act of March 12, 1903, $166.68; pension for Dr. Agustín Stahl, $1,200; appropriation of one hundred dollars a month for the support of the Deaf and Dumb Asylum established at San Juan, P. R., for the fiscal year 1915–16, $1.200; subvention to Miss Margarita Callejo, to enable her to continue her musical studies at Milan, payable quarterly in advance, $500; for the expenses incident to conducting a survey of the natural resources of Porto Rico and the collection of exhibits thereof in cooperation with the New York Academy of Science, $5,000; in all, $23,266.68.

Total, Miscellaneous Expenditures, $23,266.68.

SEC. 2. The Auditor of Porto Rico is hereby authorized to allow payment of extra compensation to such employees of the Insular Government, including the Executive Council and the House of Delegates as may have been or as may hereafter be employed on work pertaining to the Legislative Assembly or commissions or committees thereof, at the rate not to exceed seventy-five cents per hour, to be paid from available and appropriate appropriations of said bodies.

SEC. 3. That from the appropriation of $10,000 to cover the expenses of the "Economy Commission" created under Joint Resolution No. 1, approved January 28, 1914, there shall be paid to each member of said commission not receiving a fixed salary from the Insular Government, traveling expenses and a per diem of ten dollars for each day's session of said commission, while the Legislative Assembly is not in session; *Provided*, That the provisions of this and the preceding Section shall take effect immeditely upon the approval of this Act.

Sec. 4. When, in the opinion of the Governor, the interests of the public service require it he may authorize transfers from appropriations provided for any particular department of the Insular Government to other appropriations provided for the same department, and may also in like manner authorize transfers from one sub-head of appropriations to another sub-head; *Provided*, That no new offices shall be created nor any changes in salaries or rates of compensation made except such as may be approved by the Economy Commission and the Governor of Porto Rico; *And provided, further*, That the Commission of Economy and Efficiency created by Joint Resolution No. 1, approved January 28, 1914, is hereby continued for and during the fiscal year ending June 30, 1916.

Sec. 5. All laws or parts of laws in conflict with this Act are hereby repealed.

Approved, March 11, 1915.

PUBLIC RESOLUTIONS, EIGHTH LEGISLATIVE ASSEMBLY.

JOINT RESOLUTIONS.

FIRST SESSION.

[J. R. No. 1.]

JOINT RESOLUTION To extend the time within which the Executive Council may submit to the Governor of Porto Rico for approval a general plan of secondary railroads.

Whereas, An Act entitled "An Act providing for secondary railroads subventioned by The People of Porto Rico," approved March 27, 1914, at Section 4, provides that "the Executive Council shall form a general plan of secondary railroads, which it shall complete and submit to the Governor of Porto Rico for approval prior to December 1, 1914;"

Whereas, The Executive Council was unable to complete its study of the general plan of secondary railroads and submit the same to the Governor of Porto Rico on the date fixed in the said Act; Now, therefore,

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the date fixed in section 4 of an Act entitled "An Act providing for secondary railroads subventioned by The People of Porto Rico," be and hereby is changed to May 1, 1915.

SEC. 2. All laws or parts of laws in conflict with this Act are hereby repealed.

SEC. 3. That this Act shall take effect upon its approval.

Approved, March 2, 1915.

[J. R. No. 2.]

JOINT RESOLUTION To authorize the Treasurer of Porto Rico to pay a certain judgment entered against The People of Porto Rico in the District Court of the United States for Porto Rico, and to pay a claim of Messrs. Balseiro and Giorgetti, and making an appropriation for such purposes, and for other purposes.

Whereas, On November 18, 1909, The People of Porto Rico was declared, by the District Court for the Judicial District of San Juan, entitled to take for the benefit of the University of Porto Rico the goods and chattels and lands of one Eliza Kortright, who died without lawful heirs; which lands were taken possession of by The People of Porto Rico; and

Whereas, On April 22, 1912, a judgment was rendered, in the District Court of the United States for Porto Rico, in favor of one Bonocio Ramos, decreeing that the said Bonocio Ramos was entitled to a certain portion of the said land, and assessing damages to the said Ramos in the amount of six thousand ($6,000) dollars, with interest at six per cent, from the date of the judgment (April 22, 1912), and costs; and

Whereas, This judgment in the District Court of the United States for Porto Rico was affirmed by the Supreme Court of the United States, on the 16th day of March, 1914 (232 U. S., 627); and

Whereas, The said Ramos is entitled to a further amount of six hundred and thirty-six and 97/100 dollars ($636.97), as damages from the date of the entry of the said judgment to the time that he was placed in possession of the land recovered in the said action; and

Whereas, In pursuance of the mandate of the Supreme Court of the United States, an execution was issued out of the District Court of the United States for Porto Rico on behalf of the plaintiff in the said action for the amount of such judgment and costs, and a supplemental execution was issued for the amount of the said damages sustained by the plaintiff for the detention of his lands from the date of the original judgment in the District Court of the United States for Porto Rico until he was put in possession of the said portion of the said tract of land, and a levy was made on the other tracts of land which were escheated to The People of Porto Rico from the estate of Eliza Kortright; and

Whereas, The District Court of the United States for Porto Rico granted an order staying the execution until March 1, 1915, in order to give The People of Porto Rico an opportunity to appropriate funds to pay the judgment; and

Whereas, The lands which were levied upon are of a value greatly in excess of the amount of said judgment, interest, costs and damages, and if they were sold at a forced sale upon execution would result in injury to The People of Porto Rico; and

Whereas, The Governor of Porto Rico, in order to prevent the property being sold on execution, has paid, from the appropriation "Miscellaneous expenditures, subject to the approval of the Governor," ninety-four and 15/100 dollars ($94.15), costs arising out of the said judgment of the District Court of the United States for Porto Rico, and further paid the sum of seven hundred ($700) dollars, in partial satisfaction of the said judgment; and

Whereas, Messrs. Balseiro and Giorgetti also have a claim against The People of Porto Rico, arising out of the fact that they had leased from the estate of Eliza Kortright a portion of the land acquired by The People of Porto Rico from the said Eliza Kortright, which portion of the land was recovered by Bonocio Ramos, on March 19, 1909, before the expiration of the said lease, and they were evicted from the said portion of the land leased by them, and by reason of such eviction have sustained damages for the loss of certain crops which had been planted, and certain expenses in connection with the planting of said crops; and

Whereas, The amount of the damages suffered by Messrs. Balseiro and Giorgetti amount reasonably to the sum of three thousand six hundred sixty-eight and 56/100 dollars ($3,668.56); and

Whereas, The said firm of Balseiro and Giorgetti is willing to release The People of Porto Rico from all claims arising out of their said lease for the said sum of three thousand six hundred sixty-eight and 56/100 dollars ($3,668.56), without interest; now, therefore,

Be it enacted by the Legislative Assembly of Porto Rico:

Section 1. That the sum of twelve thousand ($12,000) dollars, or so much thereof as may be necessary, is hereby appropriated, to make a repayment of the said amount of seven hundred ninety-four and 15/100 dollars ($794.15) to the appropriation entitled "Miscellaneous expenditures, subject to the approval of the Governor," 1914–15, and to pay the said judgment with interest, damages and costs, and to pay the said claim of Messrs. Balseiro and Giorgetti, and the Treasurer of Porto Rico be and he is hereby authorized to make payment of said sums out of any money in the Insular Treasury not otherwise appropriated; *Provided*, That the payment shall be made by the Treasurer of Porto Rico upon due receipts to be approved by the Attorney General of Porto Rico, upon warrants signed by the Auditor of Porto Rico, countersigned by the Governor of Porto Rico.

SEC. 2. All laws in conflict herewith are hereby repealed.

SEC. 3. This Act shall take effect upon its approval.

Approved, March 2, 1915.

[J. R. No. 3.]

JOINT RESOLUTION To reimburse José Romaguera, of Ponce, in the sum of two hundred and fifty-one dollars and seven cents ($251.07) paid to the collector of internal revenue of Ponce for account of the Romaguera Pastillo Company.

Whereas, Through an involuntary error of the cashier of José Romaguera, there was collected from the private funds of José Romaguera the sum of two hundred and fifty-one dollars and seven cents as taxes, which sum was a liability only against the corporation, The Romaguera Pastillo Company, as shown by receipt No. 369, asst. 587;

Whereas, Payment of said sum was made on May 27, 1913, and the corporation, The Romaguera Pastillo Company, was dissolved the year before;

Whereas, This amount was not due from José Romaguera, and he demanded return of the said sum erroneously paid to The People of Porto Rico from the Treasurer of Porto Rico, which reimbursement the Treasurer cannot make unless the case is provided for by the Legislative Assembly; now, therefore,

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the Treasurer of Porto Rico is hereby authorized to reimburse José Romaguera in the sum of two hundred and fifty-one dollars and seven cents paid from his private funds, as shown by receipt No. 369, assessment 587, to the collector of internal revenue of Ponce on May 27, 1913.

SEC. 2. That the sum of two hundred and fifty-one dollars and seven cents is hereby appropriated from any funds in the Treasury of Porto Rico not otherwise appropriated for the purpose of making the reimbursement referred to.

SEC. 3. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 4. That this Act shall take effect upon its approval.

Approved, March 5, 1915.

[J. R. No. 4.]

JOINT RESOLUTION To reimburse the secretary of the Municipal Court for the Municipal Judicial District of Fajardo, Porto Rico, in the sum of twenty-four dollars and thirty cents, twice paid into the Insular Treasury in the same matter and for the same reason.

Whereas, On March 25, 1913, Sandalio Merced was sentenced by the Municipal Court of Fajardo, Porto Rico, on a charge of disturbing the peace, to pay a fine of twenty dollars, and costs amounting to four dollars and thirty cents, or to suffer one day of imprisonment for each dollar of the fine and costs that he failed to pay;

Whereas, Rafael Capó paid the twenty-four dollars and thirty cents for fine and costs, in the name of Sandalio Merced, and obtained the corresponding receipt;

Whereas, Sandalio Merced disapproved the action of Rafael Capó, and filed a notice of appeal to the District Court of Humacao and the corresponding bond two days after said sentence was passed on him, that is on March 27, 1913;

Whereas, The appeal taken by Merced was prosecuted in accordance with the acts and resolutions of the Second Session of the Legislative Assembly of Porto Rico in 1908, page 53;

Whereas, The sentence passed on Sandalio Merced was affirmed on appeal, and said Merced paid the fine and costs in the District Court of Humacao;

Whereas, Rafael Capó requested the secretary of the Municipal Court of Fajardo to refund the twenty-four dollars and thirty cents paid in the name of Sandalio Merced in the above-mentioned case, and returned to said secretary the receipt which had been issued to him;

Whereas, The secretary of the Municipal Court of Fajardo returned to Rafael Capó the twenty-four dollars and thirty cents stated in the receipt of the defendant on appeal;

Whereas, From the foregoing facts it appears that the sum of twenty-four dollars and thirty cents for fine and costs in case No. 6460, *The People of Porto Rico, Plaintiff*, v. *Sandalio Merced, Defendant*, for disturbing the peace, has been paid twice, once in the Municipal Court of Fajardo and again on appeal in the District Court of Humacao; now, therefore,

Be it enacted by the Legislative Assembly of Porto Rico:

Section 1. That the Treasurer of Porto Rico is hereby authorized to return, from the funds of the Treasury of Porto Rico to the secretary of the Municipal Court of Fajardo and upon cancellation of the original receipt in the case, the twenty-four dollars and thirty cents above referred to.

Sec. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

Sec. 3. That this Act shall take effect on the date of its approval.

Approved, March 11, 1915.

[J. R. No. 5.]

JOINT RESOLUTION To indemnify the religious community Franciscan Friars, of the city of San Juan, for damages suffered on account of fire.

Whereas, On January 27, 1912, a fire took place in the garage of the Bureau of Supplies, Printing and Transportation, belonging to The People of Porto Rico, which fire destroyed certain furniture and valuable objects belonging to the religious community Franciscan Friars, of the city of San Juan, among which property there was a museum of natural history with its shelves, cases, etc., valued at twenty-five hundred dollars, the balance of the property being valued at one thousand one hundred and fifty-seven dollars, according to the valuation of experts;

Whereas, The above-mentioned community, being inspired by a feeling of gratitude towards the people of the Island and taking into consideration the present financial condition of the Insular Treasury, have expressly waived any amount exceeding one thousand dollars for the aforesaid property, and it is just and equitable that such damages be repaired as an act of strict justice; now, therefore,

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That as soon as this resolution is signed by the Governor, the Auditor of Porto Rico shall issue the corresponding warrant to the Treasurer, and the latter shall pay to the religious community Franciscan Friars, of the city of San Juan, from any funds in the Treasury, not otherwise appropriated, the sum of one thousand dollars, in full payment for damages suffered by them on account of the above-mentioned fire.

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect on its approval.

Approved, March 11, 1915.

[J. R. No. 6.]

JOINT RESOLUTION Providing for the payment by the Municipality of Guánica of part of a loan made to the Municipality of Yauco before the segregation of the former town.

Whereas, The Municipality of Guánica was segregated from that of Yauco on March 12, 1914;

Whereas, One year before said segregation took place the Municipality of Yauco contracted a loan with the Insular Treasury of Porto Rico for the sum of ninety thousand dollars, for the purpose of carrying out various public works, all of the municipal wealth of said Municipality of Yauco being affected to answer for the refund of said loan;

Whereas, A part of said loan was devoted especially to the town of Guánica and for the benefit of its inhabitants, to the construction of a road and an aqueduct, which work cost twenty-three thousand dollars;

Whereas, At the time the last Legislature passed the law segregating the town of Guánica from the Municipality of Yauco and constituting the former as an independent municipality it failed to make necessary provision determining the proportional part corresponding in said debt to each municipality, due to which fact the new Municipality of Guánica has not made the corresponding appropriation in its budget for the current fiscal year; now, therefore,

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the Municipality of Guánica is hereby obligated to the payment of the sum of twenty-three thousand dollars to the Municipality of Yauco on account of the aforesaid improvements and to that end it shall appropriate in its annual budget for 1915–16 and in each succeeding annual budget until the obligation shall have been entirely extinguished, such sums as may be necessary for the payments of principal and interest of said obligation on such terms as the Executive Council may approve. *Provided, however*, That credit shall be given to the Municipality of Guánica for any principal payments which were made by the Municipality of Yauco against the said loan of ninety thousand dollars while the Municipality of Guánica was still a part of the Municipality of Yauco.

SEC. 2. That the Treasurer of Porto Rico is hereby authorized, empowered and directed to deduct from any revenues which he may collect pertaining to the Municipality of Guánica, except such revenues as may be derived from special taxes levied for other and distinct purposes, such amounts as may be necessary to meet the payments of principal and interest of said obligation and to pay the same to the Municipality of Yauco.

SEC. 3. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 4. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[J. R. No. 7.]

JOINT RESOLUTION Authorizing the municipality of San Juan to cancel and abate certain water taxes and to enter into certain agreement with the Young Men's Christian Association of San Juan.

Whereas, There exists in San Juan, Porto Rico, an association, known as the "The Young Men's Christian Association of San Juan," organized and maintained without pecuniary profits to the members; and

Whereas, All male residents of Porto Rico are eligible to membership therein; and

Whereas, The benefit derived from said membership tends to the moral and physical welfare of the participant and to the progress and benefit of The People of Porto Rico; and

Whereas, The said organization is of a semi-charitable nature and has provided free scholarships to fifty boys in San Juan; and

Whereas, The said organization is in a stringent financial condition; and

Whereas, The said organization is now indebted to the Municipality of San Juan for water from the public aqueduct for a period covered by the dates of March 1, 1913, to June 30, 1914, to the amount of $859.57, which amount the said organization is not financially able to pay; and

Whereas, The benefit conferred upon the youth of San Juan, Porto Rico, by reason of the free scholarships provided by the Young Men's Christian Association of San Juan, is recognized to be of such paramount importance to the community at large, as to warrant the community in extending assistance to the said association; and

Whereas, The Municipal Council of San Juan has signified its desire to extend assistance to the Young Men's Christian Association of San Juan, but under the law, legislative sanction thereof is required; now, therefore,

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the Municipality of San Juan is hereby authorized to remit and abate the sum of eight hundred and fifty-nine dollars and fifty-seven cents and cancel, on the books of the municipality, the charge for this amount against the Young Men's Christian Association of San Juan, without collecting said amount.

SEC. 2. That the Municipality of San Juan is hereby authorized to enter into such arrangements for the furnishing of water from the municipal aqueduct, to the Young Men's Christian Association of San Juan, at any special rate, in exchange for money, or for any other consideration as will be of mutual advantage to all concerned; said arrangement to cover the period of from July 1, 1914, to and until said municipality may determine.

SEC. 3. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 4. That this Act shall take effect immediately after its approval.

Approved, March 11, 1915.

[J. R. No. 8.]

JOINT RESOLUTION Appropriating the sum of one thousand four hundred and fifty (1,450) dollars to meet the expenses of the irrigation investigating and reporting commission until their work is completed.

Whereas, The funds appropriated by Section 5 of Joint Resolution No. 12, approved March 28. 1914, have been exhausted; and

Whereas, There are still outstanding some claims for salaries of personnel, printing, etc.; now, therefore,

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the sum of one thousand four hundred and fifty (1,450) dollars, or so much thereof as may be necessary, is hereby appropriated from any funds in the Treasury of Porto Rico not otherwise appropriated for the purpose of making the said payment.

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect upon its approval.

Approved, March 11, 1915.

[J. R. No. 9.]

JOINT RESOLUTION To dispose of a surplus in an appropriation of $2,000 for the maintenance of the necessary machinery for an artesian well at Quebradillas.

Whereas, On March 13, 1913, the Legislative Assembly passed a Joint Resolution appropriating the sum of two thousand (2,000) dollars for the maintenance of the necessary machinery of an artesian well at Quebradillas; and

Whereas, Said artesian well was not put in operation until the expiration of one year after the date on which the said resolution became effective; and

Whereas, From the amount appropriated by said resolution there is a surplus of approximately one thousand two hundred (1,200) dollars; now, therefore,

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. The Treasurer of Porto Rico is hereby authorized and directed to pay from said surplus, the amounts necessary for the maintenance of said machinery and the operation of the artesian well at Quebradillas to and including June 30, 1916.

SEC. 2. All laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. This Law shall take effect immediately after its approval.

Approved, March 11, 1915.

[J. R. No. 10.]

JOINT RESOLUTION Providing for the payment to Mr. A. Nin y Martínez, engineer of the Irrigation Investigating and Reporting Commission, of the sum of three hundred dollars for extraordinary services rendered to said commission.

Whereas, Mr. A. Nin y Martínez was appointed in January, 1914, as engineer of the Irrigation Investigating and Reporting Commission, at a salary of three hundred dollars per month; and

Whereas, The aforesaid Commission, on September 1, 1914, reduced the salary of Mr. A. Nin y Martínez as such engineer to one hundred and fifty dollars per month; and

Whereas, Mr. A. Nin y Martínez, in the performance of his duties, was obliged to make frequent trips to the irrigation works without receiving any per diem, travel, or other allowance to cover necessary expenses thereof; and

Whereas, The volume of work performed by Mr. Nin y Martínez has greatly increased during recent months, requiring his services at night, and particularly during the absence from Porto Rico of the chairman of the Commission; and

Whereas, The services of Mr. Nin y Martínez have been rendered with diligence, fidelity and zeal, and to the entire satisfaction of the said Commission; now, therefore,

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. That the sum of three hundred dollars be, and the same is, hereby appropriated, out of any funds in the Insular Treasury not otherwise appropriated, for payment to Mr. Nin y Martínez in full compensation for extraordinary and night services rendered by him to the Irrigation Investigating and Reporting Commission.

SEC. 2. That all laws or parts of laws in conflict herewith are hereby repealed.

SEC. 3. That this Act shall take effect from and after its approval.

Approved, March 11, 1915.

[J. R. No. 11.]

JOINT RESOLUTION To create a commission to study and provide the necessary means for the publication of the works of the illustrious Porto Rican Eugenio María de Hostos.

Whereas, To Porto Rico fell the glory of being the birthplace of the illustrious thinker, sociologist, man of letters, pedagogue and patriot, Eugenio María de Hostos, whose works have covered with glory his native land; and

Whereas, The works of Eugenio María de Hostos, because of their exceptional merit and the valuable teachings contained in them, have acquired world fame, some of them having been translated into various foreign languages so that they may be read by people not speaking Spanish;

Whereas, It is just that the natives of Porto Rico should be afforded an opportunity to study the works of this illustrious man, and that with this end in view his works may be published in such a manner that it may be possible for a large number of Porto Ricans to acquire them at a reasonable price; now, therefore,

Be it enacted by the Legislative Assembly of Porto Rico:

SECTION 1. There is hereby created a commission to be known as the "Publishing Commission of the Works of de Hostos" and which shall be constituted in the following manner:

The Governor of Porto Rico, as chairman *ex officio.*

The President of the Executive Council.

The Speaker of the House of Delegates.

The Commissioner of Education.

And the Secretary of Porto Rico, who shall serve as secretary of the commission.

SEC. 2. It shall be the duty of the commission to compile, revise and classify the works and writings of Eugenio María de Hostos, and to do whatever may be necessary for the purpose of preparing all the necessary material for the publication of a complete edition of said works and writings.

The commission shall submit a report to the Legislative Assembly at its next regular session, which report shall be accompanied by an estimate of the total cost of said edition.

SEC. 3. That this Act shall take effect immediately upon its passage.

Approved, March 11, 1915.

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64TH CONGRESS, } SENATE. { DOCUMENT
1st Session. } { No. 26.

EXPERIMENTAL TESTS OF MATANUSKA COAL FOR NAVAL SHIPS.

LETTER

FROM

THE SECRETARY OF THE NAVY,

TRANSMITTING

REPORT OF THE EXPERIMENTAL TESTS OF MATANUSKA (ALASKA) COAL FOR THE USE OF THE SHIPS OF THE UNITED STATES NAVY.

DECEMBER 17, 1915.—Referred to the Committee on Naval Affairs and ordered to be printed, with accompanying illustrations.

NAVY DEPARTMENT,
Washington, May 6, 1915.

The PRESIDENT OF THE SENATE,
The SPEAKER OF THE HOUSE OF REPRESENTATIVES,
Washington, D. C.

SIRS: The naval appropriation act approved March 4, 1913, makes provision for the investigation by experimental tests of coal in Alaska for use on board ships of the United States Navy and for report upon coal and coal fields available for the production of coal for the use of the ships of the United States Navy or any vessel of the United States.

In accordance with the foregoing, I have the honor to submit herewith the report of the tests of Matanuska coal.

Very respectfully,

JOSEPHUS DANIELS.

[Third indorsement.]

DECEMBER 12, 1914.

From: Bureau of Steam Engineering.
To: Navy Department (Material).
Subject: Report of tests of Matanuska coal, U. S. S. *Maryland*, November 7, to 18, 1914. (Board's letter, Nov. 18, 1914.)

1. Returned.
2. This test indicates that Matanuska coal is suitable for naval use.
3. It is recommended that it be used when it can be obtained at a price less than Pocahontas.

4. It is requested that a copy of this report be forwarded to this bureau for its files.

GRIFFIN.

[Fourth indorsement.]

NAVY DEPARTMENT, *December 22, 1914.*

To: Bureau of Steam Engineering.
Subject: Report of tests of Matanuska coal, U. S. S. *Maryland*, November 7 to 18, 1914.

1. This report has been examined in the office of the Assistant Secretary.

2. The bureau will prepare such parts of this report as are suitable for printing in a public document for presentation to the Naval Committees of Congress.

JOSEPHUS DANIELS.

REPORT OF TESTS OF MATANUSKA COAL.

[U. S. S. *Maryland*, Nov. 7 to Nov. 18, 1914.]

NAVY DEPARTMENT (DIVISION OF MATERIAL),
December 11, 1914.

Forwarded to the Bureau of Steam Engineering for comment and recommendation.

U. S. S. "MARYLAND,"
Navy Yard, Mare Island, Cal., November 18, 1914.

From: Board.
To: Commanding Officer.
Subject: Report of coal test; Matanuska coal.
Reference: Bureau of Steam Engineering Letter No. 137067-623-15-F of October 16, 1914, and commanding officer's letter A-7-4A of November 5, 1914.
Inclosures: Tabulated data sheets; copies of steam log from November 7 to November 18, 1914. Orders and sample forms.

1. In accordance with your order of November 5, 1914, and the Bureau of Steam Engineering letter No. 137067-623-15-F of October 16, 1914, we report as follows:

The prescribed tests of Matanuska coal as laid down in the abovementioned reference were carried out in the following order:

2. ORDER OF TESTS.

(1) *Seven-day port test:* 4 a. m. November 7 to 4 a. m. November 14, 1914; test held at the navy yard, Puget Sound, Wash.

(2) *Four-hour full-power test:* 1.30 p. m. to 5.30 p. m. November 14, 1914; tests held in Puget Sound and Straits of Juan de Fuca.

(3) *Twenty-four hour 15-knot test:* Three-quarter boiler power; 10.45 a. m. November 15 to 10.45 a. m. November 16, 1914; test held in the Straits of Juan de Fuca and Pacific Ocean en route to Mare Island, Cal.

(4) *Forty-eight hour 10-knot test:* 12 noon November 16 to 4 a. m. November 18, 1914; test held in the Pacific Ocean making passage to Mare Island, Cal.

3. SEVEN-DAY PORT TEST.

Boiler No. 8 was used during the entire week. The usual auxiliaries were run; evaporators were used when necessary for filling the ship's tanks. The load on the ship was rather heavy—somewhat heavier than with that during the tests of Pocahontas or Bering River coals. It will be seen by attached data sheets that the load is proportionate to the total water evaporated. The water evaporated was measured as in previous tests.

The port auxiliary machinery and condenser were used. All steam drains were led into the port feed tank. Water was pumped across to the starboard feed tank where it was measured before pumping into the boilers. All coal, ash, and clinker were weighed; during day watches of two days the load was so excessive for one boiler that it became necessary to assist the draft by running the blowers. Run-of-mine coal was used for five days, slack for one day, and lump coal for part of one day. There were no casualties. Data was very carefully collected by the assistant engineer officers who stood a strict watch during the test. At the conclusion of each watch the assistant engineer officer submitted a report of data for his watch on forms which had been previously prepared. During this test this coal burned very freely. The firing was very good, the analyses of the flue gases giving rarely below 9 per cent of CO_2. There was little clinker, but the ash was several per cent higher than with the Pocahontas coal. The firing was carefully supervised, the officer on watch and chief water tender being present at all times. The draft was good and the coal burned with bright yellowish flames. The coal coked very nicely; the coke was friable and very easily worked by the firemen. Fires 6 to 8 inches thick were carried most of the time, though occasionally they were heavier. Two fires were cleaned each watch, although they might have been operated longer. The ash fused into clinker on the grate bars; generally about 2 inches thick, medium weight, porous, a little tough and hard while hot but friable when cold. The clinker had a little ash mixed throughout the mass. It stuck a little to the bridge wall but not seriously. The soot deposit was about 25 per cent more than with Pocahontas coal. The soot was a little different from that of the Pocahontas as the granules appeared as minute fused grains.

The work of firing this coal was easy for the firemen. Hoes were used for spreading the fires which were kept level. The slice bar was used sparingly. The load of the ship was carried with ease except when coaling ship or cleaning up after coaling, when there was a heavy drag on the boiler and the draft had to be assisted by the blowers. The load during this week of test would have ordinarily required two boilers burning Pocahontas coal.

4. FOUR-HOUR FULL-POWER TEST, FORCED DRAFT.

The *Maryland* stood by to get under way at 8.30 a. m. with all boilers, but, owing to the fog, she was unable to get under way until 11.19 a. m. The speed was gradually worked up to 120 turns about 1.30 p. m., when the test commenced. The fires had been worked, and the ship made 108 turns under natural draft when the blowers were started and a draft of about 1 inch of air pressure in all firerooms obtained. The speed of 119 to 120 turns was very easily made. The fires were carried thin; blowers regulated to about 350 revolutions; dampers were partly shut. After all the fires were in good condition it was possible to regulate the steam pressure by operating the ash-pan doors. A very uniform steam pressure was carried. The fires burned brightly, the work of firing being very easy on account of the ease of breaking up the coke. The furnaces were one mass of yellowish flame. There was not an excessive amount of ash formed. The men, on being questioned, all said that it was the easiest 20-knot run that they had ever made.

5. TWENTY-FOUR HOUR 15-KNOT TEST.

The U. S. S. *Maryland* anchored in Port Angeles after the four-hour forced-draft test. During the evening and following morning the usual cleaning work was done on all boilers; ash pans and furnaces were hauled and all ash and clinker separated and weighed. Tubes were blown with steam, and all soot boxes hauled. The furnaces were primed with Matanuska coal. Boilers Nos. 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16 were lighted up. At 10 a. m. the *Maryland* got under way and stood to sea, setting a course for San Francisco Bay. By 10.45 a. m. the speed had reached 85 turns, which was the speed set to make 15 knots, and the test began. Data was collected as per sample forms. It soon became evident that the boiler power was much too great for the speed if the fires were to be properly worked in order to get the highest efficiency. Boilers Nos. 4, 6, and 15 were first banked and then allowed to die out. No. 16 boiler was banked and the speed maintained with eight boilers. The firing was by signal, the intervals being about nine minutes. The same general remarks apply to the burning of the coal on this test. It burned with the greatest of ease, forming a very easily worked coke, not an excessive amount of ash or clinker, and, in general, appeared to be easier to handle than the Pocahontas coal. The CO_2 found in flue analyses was generally high, over 9 per cent. Fires carried about 6 to 8 inches thick were always glowing, ash pans bright, and the furnaces a mass of yellowish incandescent flame. The coal burned like pine knots. The amount of clinker was not excessive, was more or less easy to work, and was very friable when cold. The fires were noticeably hot. The amount of soot made was a little higher than is generally made by good Pocahontas coal, about 10 per cent more.

6. TEN-KNOT TEST.

This test was commenced at 12 noon, November 16, the 15-knot test having been finished at 10.45. Ash pans and furnaces were hauled; tubes blown and soot boxes hauled; all fires were cleaned and were built up. Boilers Nos. 9. 10, 11, 12, 13, and 14 were used, but, as in the 15-knot test, it was found that there were too many boilers for working fires properly. Two boilers were ultimately cut out, and the test made with four boilers, which were more than ample, as, at times, there were four evaporators in use. The same remarks as to the fires on the 15-knot test apply to this test. Fires were very easily worked; the coke broke up easy; clinker was not very hard; bright level fires from 6 to 8 inches thick and sometimes thicker were carried, and the CO_2 was generally high. After running 40 hours it was found there were but 3 tons of Matanuska coal left, so the test was considered completed after 40 hours.

7. GENERAL.

The Matanuska coal was delivered by the steamship company to the coaling plant at the navy yard, Puget Sound, where it was stowed under cover. At the time of the arrival of the *Maryland*, it was still sacked. Some of the sacks had become rotten, and a little coal had been spilled on the floor of the dock. The coal was inspected by the officers of the board and the assistants in the engineering department. It was found to be very slack, as will be seen in the data sheet; also, it was very dry. There were very few lumps larger than a man's fist. A large working party under Ensign Bowden was sent to the coal sheds to load the coal on lighters. Every bag was weighed and spread out for inspection. All extraneous matter observed was picked out. There was very little slate, not over 200 pounds being picked out of the whole lot of 586 tons. About 40 tons was laid aside and screened into two sizes; that which would go through a quarter-inch mesh and that which would not. Of the former there was about 25 tons and of the latter about 15 tons. This coal was burned on successive days; one day being devoted to the slack and a part of another day to the lump. The slack appeared to burn better than the lump, and the reason will be seen in the chemical analyses sheet attached. When the lighters were filled they were towed alongside the ship and the coal was stowed in bunkers, which had been previously swept clean. During the test there was no evidence of any gases being given off the coal. During the loading, in order to avoid dust, the coal was thoroughly wet down, but even with this precaution, it was very dusty. The noticeable characteristic of this coal is its friability. Lumps pulverize very easily. This accounts for the chemical analysis, which shows the slack to contain less extraneous matter than the lump. It will be seen that the coal being friable powders very easily, while the lump contains more or less shale and is hard. In this respect the coal shows a marked difference from the Bering River coal, where the lumps contained a small per cent of extraneous matter while the slack contained about 30 per cent. Before loading the lighters samples at random were taken from the pile. These were sized into slack, buckwheat, and lump, and were taken to the chemist for analysis as to ash. These samples contained from 6 to 10 per cent of ash, and on account of this showing it was decided that nothing further than hand cleaning would be necessary.

8. PHYSICAL AND CHEMICAL CHARACTERISTICS.

Moisture.—There was apparently no free moisture on inspection before loading. This coal was stowed in a dry place and was extremely dry and dusty. Density 40.3 cubic feet per ton alongside and 39.8 cubic feet per ton at coal dock.

Sample.—The laboratory sample was obtained by taking a shovelful out of every fifth bag as it came on board the lighter. This was bagged and stowed in a dry place. There were about 50 bags in this pile. On the day the laboratory samples were taken these bags were dumped out and the pile thoroughly mixed. As this pile was about 5 tons in weight it was reduced and every fifth shovelful saved. It was again quartered and then quartered again. This gave a 325-pound sample, which was taken on board ship and then quartered and pulverized until there was a proper amount for chemical analyses and shipment to the Bureau of Steam Engineering and the Bureau of Mines.

General sample.—Results of analyses are as follows:

	Per cent.
Moisture	0.73
On dry basis:	
Volatile combustible matter	20.29
Fixed carbon	69.32
Ash	10.39
Sulphur	.49

	Slack.	Buckwheat.	Lump.
	Per cent.	*Per cent.*	*Per cent.*
Moisture	0.75	0.65	0.63
On dry basis:			
Volatile combustible matter	20.96	20.22	19.47
Fixed carbon	70.85	70.50	65.19
Ash	8.19	9.28	15.34

Analyses by Mr. North, yard chemist, navy yard, Puget Sound.

A sizing sample of 785 pounds was obtained which gave the following:

Lump, which would not go through a one-half-inch mesh screen, 17.7 per cent, 139 pounds.

Buckwheat, which would not go through a one-quarter-inch mesh screen, 12.1 per cent, 196 pounds.

Slack, which would go through a one-quarter-inch mesh screen, 70.2 per cent, 551 pounds.

Slate: There were no impurities in this coal of any consequence. Little or no slate could be found.

Calorific value: This could not be obtained.

Smoke: This coal makes some smoke, considerably more than Bering River and about the same amount as Pocahontas.

Indicator cards were taken once an hour during the full power test and once a watch during the other tests. The horsepower found agreed with the curves of the horsepower on board for the 20-knot test, but the 15-knot test and 10-knot test appeared to be somewhat under that generally found for that of 15 and 10 knots. The indicators are old and the results obtained were irregular.

9. CONCLUSION OF TEST.

At the conclusion of each test an inspection of the boilers was made. No warping or overheating occurred during the four-hour full-power run. During the 15-knot test the uptakes of No. 7 boiler were warped a little. In the uptakes of No. 13 boiler there were 10 rivets pulled out and the uptake door sprung a little. A few panel doors on the boilers show signs of some of the insulation being burnt out. From the above it will be seen that this coal has no bad effects on the boilers or uptakes. There were no other casualties.

There were seven grate bars renewed during the port test.

10. The work of this test has been entered into by the officers and men concerned with the greatest enthusiasm. No effort has been spared to obtain the best results. All other ship work has been made secondary to the coal test. The machinery and boilers of the *Maryland* functioned perfectly during all these tests.

11. Mr. S. B. Flagg, engineer of the Bureau of Mines, was present in the firerooms during these tests. He did much to assist the ship's force in working fires, and instructing the firemen in the best methods of obtaining efficient combustion of this coal. The board is also indebted to Mr. Flagg for advice and assistance in compiling the data of this report.

12. Coal account—

	Tons.
Receipts:	
(*a*) By invoice	586.00
(*b*) By weight	585.70
(*c*) By tally	583.00
(*d*) By bunker estimate	574.00
Expenditures:	
(*a*) Loss in handling (due to fineness)	12.000
(*b*) Priming and preparatory to port test	4.000
(*c*) Port test	[1] 116.185
(*d*) Priming and preparatory to four-hour test	45.000
(*e*) Four-hour test	[1] 85.849
(*f*) Coming to anchor	8.000
(*g*) Priming and preparatory to 15-knot test	19.000
(*h*) Fifteen-knot test	[1] 161.112
(*i*) Preparatory and cleaning fires for 10-knot test	8.000
(*j*) Ten-knot test	[1] 120.582
Total	579.728
Difference	6.272
On hand, about	3.000
Bunker estimate, inspection of bunkers:	
Before test	574.000
After port test	450.000
After four-hour test	328.000
After 15-knot test	120.000
After 10-knot test	3.000

13. After investigating and reconciling all data the board submits the following tables of comparisons with Pocahontas, Bering River, and Matanuska coals.

Chemical comparison of coal.

[Samples of which the analyses are given below were taken from Pocahontas and Bering River coals tested by U. S. S. *Maryland* in 1913.]

Name.	Moisture.	Volatiles.	Fixed carbon.	Ash.	Sulphur.	British thermal units.
Pocahontas	2.5	19.2	74.6	6.2	0.75	14,600
Do	2.4	19.0	74.6	6.4	.65	14,600
Bering River	1.6	17.7	61.9	20.4	.65	12,180
Do	1.7	16.7	59.9	23.4	.60	11,740
Do	3.5	16.3	58.8	24.9	.60	11,410
Do	1.0	17.5	69.9	12.6	.60	13,434
Matanuska	.73	20.29	69.32	10.39	.49	(2)

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[1] These quantities by careful tally or actual weight. Other figures by estimate.

[2] No apparatus available for making this determination.

Analyses of Pocahontas and Bering River coals supplied by Bureau of Steam Engineering. Sample of Matanuska coal are taken as herein described. Analyses of Matanuska coal by Mr. North, navy yard chemist, Puget Sound.

Densities:	Cubic feet per ton.
Pocahontas, average	42.16
Bering River, average	39.83
Matanuska, average	40.30

Comparison of port consumption.

PORT TEST OF SEVEN DAYS.

Coal.	Total tons.	Gallons water evaporated.	Gallons evaporated per pound of coal.	Ash.	Efficiency.
				Per cent.	*Per cent.*
Pocahontas	94.291	248,610	1.177	11.04	100
Bering River	136.391	247,783	.811	36.6	68.9
Matanuska	116.185	305,446	1.173	15.8	99.6

Four-hour forced-draft test, speed 20 knots.

Coal.	(1) Total tons burned.	(2) Percentage of ash.	(3) Smoke by scale.	(4) Knots per ton.	(5) I. H. P.	(6) Pounds per I. H. P.	(7) Steaming radius.	(8) Average efficiency.
Pocahontas	76.773	8.8	2.4	1.042	20,700	2.077	2,263.7	100.0
Bering River[1]	159.29	38.87	1.5	.502	20,700	4.309	....	....
Matanuska	85.848	18.67	2.8	.932	20,700	2.3224	2,000.3	88.5

Fifteen-knot test, 24 hours.

Coal.	(1) Total tons burned.	(2) Percentage of ash.	(3) Smoke by scale.	(4) Knots per ton.	(5) I. H. P.	(6) Pounds per I. H. P.	(7) Steaming radius.	(8) Average efficiency.
Pocahontas	150.12	7.6	1.25	2.398	6,750	2.0758	4,980.1	100.0
Bering River	343.44	35.0	.60	1.048	6,750	4.7489	2,280.7	46.2
Matanuska	157.212	14.59	1.99	2.29	6,750	2.1739	4,925.5	99.9

Ten-knot test, 40 hours.

Coal.	(1) Total tons burned.	(2) Percentage of ash.	(3) Smoke by scale.	(4) Knots per ton.	(5) I. H. P.	(6) Pounds per I. H. P.	(7) Steaming radius.	(8) Average efficiency.
Pocahontas	114.437	10.5	1.18	3.495	2,134	3.003	7,185.5	100.0
Matanuska	118.582	15.67	1.86	3.378	2,150	3.0885	7,254.7	101.9

[1] During this test speed of 20 knots could not be obtained.

NOTE.—Horsepower taken from standardization curves; all entries adjusted to uniform lengths of test, and the same speed.

The figures in column 8 are derived from the product of percentage of efficiency based on knots per ton and relative densities.

14. The board finds that this sample of Matanuska coal tested is suitable in every respect for use in the naval service.

PHILIP ANDREWS,
Captain, United States Navy.
MILTON S. DAVIS,
Lieutenant, United States Navy.
H. E. KAYS,
Lieutenant, United States Navy.
W. O. HENRY,
Ensign, United States Navy, Recorder.

[First indorsement.]

From: Commanding officer, U. S. S. *Maryland.*
To: Secretary of the Navy.

Forwarded.

PHILIP ANDREWS,
Captain, United States Navy.

Seven-day port test.

FIRST DAY, 4 A. M. NOV. 7 TO 4 A. M. NOV. 8, 1914.

[Place: Puget Sound Navy Yard. Boiler No. 8. Coal: Matanuska; run of mine.]

Watch.	Pounds of coal burned.	Gallons of water evaporated.	Gallons of water evaporated per pound of coal.	Pounds of dry ash.	Pounds of dry clinker.	Per cent of ash and clinker in coal by weight.	Per cent of clinker in ash by weight.	Smoke density, Reigelmann scale.	Average per cent of CO_2.	Average temperature of uptake.	Setting of dampers.	Setting of ash-pan doors.	Average boiler pressure.	Average feed pressure.	Auxiliary exhaust pressure.	Temperature of feed water.	Temperature of air pump discharge.	Thickness of fires.
A. m.																		*Inches.*
4 to 8	5,747	6,091	1.06	532	23	9.6	4.1	1.0	11.85	....	[1].62	[1].84	176	265	23.5	197	160	10
8 to 12	7,093	8,649	1.22	1,131	156	18.0	12.1	1.4	11.78	....	.61	.88	172	244	22.5	202	159	8
12 to 4	7,120	6,520	.916	1,204	290	20.9	19.4	1.3	11.45	....	.70	1.00	167	225	22.2	196	161	8
4 to 8	6,781	8,965	1.32	745	326	16.5	29.0	2.5	11.88	....	.64	.62	188	287	21.9	195	159	9
8 to 12	6,624	7,986	1.20	798	183	14.8	18.6	....	10.06	....	.42	.94	202	285	22.0	202	156	7
12 to 4	6,112	7,336	1.20	780	155	15.3	16.6	....	11.88	....	.25	.42	200	283	21.9	199	159	9
Total	39,477 17.624	45,547	....	5,190	1,133	....	....	....	....	....	....	....	....	....	....	....	....	....
Average	6,579.5	7,591.2	[2]1.15	865	188.8	[3]16.0	[3]17.9	1.6	11.48	....	.54	.78	184	265	22.3	199	159	8.5

Ran over CO_2 solution on 8 to 12 a. m. watch, which probably accounts for low CO_2.

SECOND DAY, 4 A. M. NOV. 8 TO 4 A. M. NOV. 9, 1914.

[Place: Puget Sound Navy Yard. Boiler No. 8. Coal: Matanuska; run of mine.]

Watch.	Pounds of coal burned.	Gallons of water evaporated.	Gallons of water evaporated per pound of coal.	Pounds of dry ash.	Pounds of dry clinker.	Per cent of ash and clinker in coal by weight.	Per cent of clinker in ash by weight.	Smoke density, Reigelmann scale.	Average per cent of CO_2.	Average temperature of uptake.	Setting of dampers.	Setting of ash-pan doors.	Average boiler pressure.	Average feed pressure.	Auxiliary exhaust pressure.	Temperature of feed water.	Temperature of air pump discharge.	Thickness of fires.
4 to 8	5,261	6,439	1.22	477	397	16.6	45.3	1.3	11.32	....	.6	.6	203	282	22	194	154	8
8 to 12	5,815	7,172	1.23	530	136	11.4	19.5	1.3	11.33	....	.7	1.0	210	241	22	196	147	8
12 to 4	6,425	8,232	1.28	825	222	16.2	21.2	2.5	10.85	....	.5	1.0	154	223	22	208	150	9
4 to 8	6,948	8,395	1.21	731	316	15.0	14.4	2.5	11.90	....	.5	1.0	156	226	23	196	163	7
8 to 12	5,767	7,847	1.36	584	254	14.5	30.3	....	12.30	....	.3	.6	205	294	22	198	160	8
12 to 4	4,121	5,786	1.40	315	180	12.0	36.4	....	9.98	....	.75	.8	181	268	21	201	134	8
Total	34,337 15.329	43,871	....	3,462	1,505	....	....	....	....	....	....	....	....	....	....	....	....	....
Average	5,722.8	7,311.8	[3]1.28	577.0	264.1	[3]14.4	[3]30.3	1.9	11.28	....	.56	.83	185	256	22	198	151	8

THIRD DAY, 4 A. M. NOV. 9 TO 4 A. M. NOV. 10, 1914.

[Place: Puget Sound Navy Yard. Boiler No. 8. Coal: Matanuska; run of mine.]

4 to 8	4,977	6,785	1.36	744	276	20.4	27.1		10.98	396	.36	.80	205	257	22.9	201	146	8
8 to 12	6,402	7,518	1.17	570	521	17.1	47.3	2.5	11.95	400	.44	1.00	183	260	21.9	195	142	8
12 to 4	6,267	7,290	1.16	428	370	12.7	46.4	1.55	11.20	431	.41	.94	188	259	21.1	197	131	7
4 to 8	6,484	7,335	1.13	988	215	18.5	17.8		11.00	484	.42	.94	184	250	21.1	199	129	9
9 to 12	6,451	6,750	1.05	525	477	15.5	47.6		11.23	478	.50	1.00	182	255	20.0	193	139	8
12 to 4	5,973	6,357	1.06	696	280	16.3	28.7		10.58	474	.77	.70	197	254	20.5	194	139	7
Total	35,654 15.916	42,035		3,961	2,139													
Average	5,942.3	7,058.3	[2] 1.15	660.1	356.5	[2] 17.1	[2] 35.1	2.0	11.16	444	.48	.90	190	256	21.3	196	138	7.9

FOURTH DAY, 4 A. M. NOV. 10 TO 4 A. M. NOV. 11, 1914.

[Place: Puget Sound Navy Yard. Boiler No. 8. Coal: Matanuska; run of mine.]

4 to 8	6,625	7,204	1.09	954	234	17.6	19.7	2.5	11.15		.50	.50	155	213	21.3	191	138	8
8 to 12	7,608	8,036	1.04	718	180	11.8	20.0	1.55	11.62	510	.64	.88	172	233	20.8	199	140	8
12 to 4	7,347	8,798	1.19	571	346	12.5	37.7	1.0	10.95	490	.67	.80	225	283	20.3	193	139	11
4 to 8	5,645	6,357	1.11	766	236	17.7	23.5	1.6	10.45	436	.36	.55	221	293	20.0	192	128	8
8 to 12	5,305	6,437	1.21	805	141	17.8	14.9		10.38	400	.70	.85	207	242	20.4	196	139	8
12 to 4	6,408	6,904	1.08	918	316	19.2	25.6		11.90	441	.50	1.00	183	252	20.6	197	147	8
Total	38,938 17.383	43,736		4,732	1,453													
Average	6,489.6	7,289.3	[2] 1.12	788.6	242.2	[2] 15.8	[2] 23.5	1.11	11.07	455	.56	.76	194	253	20.6	195	139	8.5

FIFTH DAY, NOV. 11 TO NOV. 12, 1914.

[Place: Puget Sound Navy Yard. Boiler No. 8. Coal: Matanuska; run of mine.]

4 to 8	6,826	7,732	1.13	890	261	16.8	22.7		12.2	467	.69	1.00	177	244	22.2	195	147	7
8 to 12	5,333	7,335	1.37	864	383	23.4	30.7	1.9	10.75	470	.72	1.00	182	218	22.1	190	122	6
12 to 4	6,599	6,876	1.04	663	110	11.7	14.4	1.3	10.2	462	.39	.80	232	303	20.3	196	128	7
4 to 8	5,154	7,142	1.38	827	248	20.9	23.1	1.36	11.22	478	.27	.83	208	252	20.3	191	127	6
8 to 12	4,349	5,949	1.36	392	204	13.7	34.2		11.57	480	.19	.19	215	267	20.1	190	130	6
12 to 4	4,552	5,378	1.18	572	185	16.6	24.4		12.67	465	.25	.25	215	277	20.6	199	133	9
Total	32,813 14.648	40,412		4,208	1,391													
Average	5,468.8	6,735.3	[2] 1.24	701.3	231.8	[2] 17.1	[2] 24.8	1.55	11.44	470	.42	.68	205	260	20.9	194	131	7

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[1] Open.

[2] Calculated from totals, not from averages of columns.

Seven-day port test—Continued.

SIXTH DAY, 4 A. M. NOV. 12 TO 4 A. M. NOV. 13, 1914.

[Place: Puget Sound Navy Yard. Boiler No. 8. Coal: Matanuska; lump.]

Watch.	Pounds of coal burned.	Gallons of water evaporated.	Gallons of water evaporated per pound of coal.	Pounds of dry ash.	Pounds of dry clinker.	Per cent of ash and clinker in coal by weight.	Per cent of clinker in ash by weight.	Smoke density, Reigelmann scale.	Average per cent of CO₂.	Average temperature of uptake.	Setting of dampers.	Setting of ash-pan doors.	Average boiler pressure.	Average feed pressure.	Auxiliary exhaust pressure.	Temperature of feed water.	Temperature of air pump discharge.	Thickness of fires.
A. m.																		*Inches.*
4 to 8	4,852	6,071.5	1.25	477	226	14.5	30.1	2.5	11.74	408	.67	.56	232	300	20.7	199	125	9
8 to 12	5,650	7,865.0	1.39	640	148	13.9	18.8	1.6	11.24	430	.83	1.00	171	209	21.5	199	133	7
12 to 4	5,755	7,091.0	1.23	969	194	20.2	16.7	1.3	11.45	450	.47	.94	176	243	21.1	196	130	8
4 to 8	6,378	6,846.0	1.07	709	88	12.5	11.0	1.3	11.70	450	.83	1.00	191	233	21.3	201	129	8
8 to 12	6,261	8,150.0	1.29	840	174	16.2	17.2	....	11.68	471	.84	.98	193	260	21.1	197	139	6
12 to 4	6,158	6,328.5	1.03	672	187	13.9	21.7	....	11.30	503	.78	1.00	195	283	21.6	196	154	8
Total	35,054 15.649	42,352	....	4,307	1,017	....	....	....	....	....	....	....	....	....	....	....	....	....
Average	5,842.3	7,058.6	[1] 1.21	717.8	169.5	[1] 15.2	[1] 19.1	1.6	11.52	452	.74	.91	193	255	21.2	198	135	7.7

SEVENTH DAY, 4 A. M. NOV. 13 TO 4 A. M. NOV. 14, 1914.

[Place: Puget Sound Navy Yard. Boiler No. 8. Coal: Matanuska; slack.]

4 to 8	7,311	8,423	1.15	675	218	12.2	24.4	2.0	12.43	482	.55	1.00	167	228	22.1	202	158	8
8 to 12	7,804	8,238	1.05	840	408	15.9	32.7	2.0	11.60	486	1.00	1.00	171	213	21.4	199	149	8
12 to 4	7,549	8,304	1.11	1,021	471	19.7	31.5	1.3	11.97	504	.86	.94	189	234	21.4	199	148	8
4 to 8	6,986	7.442	1.06	852	226	15.4	20.9	1.3	10.80	524	.42	1.00	201	279	21.4	201	157	8
8 to 12	7,346	7,498	1.02	854	205	15.6	26.5	....	12.00	524	.98	.98	181	228	21.0	199	153	7
12 to 4	6,085	7,498	1.23	598	206	14.7	33.1	....	11.66	505	.28	1.00	222	206	21.1	201	155	6
Total	43,081 19.233	47,493	....	4,840	1,913	....	....	....	....	....	....	....	....	....	....	....	....	....
Average	7,180.2	7,915.5	[1] 1.10	806.6	318.8	[1] 15.7	[1] 28.3	1.6	11.74	504	.68	.96	188	246	21.4	200	153	7.5

[1] Calculated from totals, not from averages of columns.

Seven-day port test.

BY DAYS.

[Place: Puget Sound Navy Yard. Boiler No. 8. Coal: Matanuska.]

Watch.	Tons of coal used.	Gallons of water evaporated.	Gallons of water evaporated per pound of coal.	Pounds of dry ash.	Pounds of dry clinker.	Per cent of ash and clinker in coal by weight.	Smoke density, Reigelmann scale.	Per cent of clinker in ash by weight.	Average per cent of CO_2.	Average temperature of uptake.	Setting of dampers.	Setting of ash-pan doors.	Average boiler pressure.	Average feed pressure.	Auxiliary exhaust pressure.	Temperature of feed water.	Temperature of air-pump discharge.	Thickness of fires.
1914.																		*Inches.*
Nov. 7	17.624	45,547	1.15	5,190	1,133	16.0	1.6	17.9	11.48	....	.54	.78	184	265	22.3	199	159	8.0
8	15.329	43,871	1.28	3,462	1,505	14.4	1.9	30.3	11.28	....	.56	.83	185	256	22.0	198	151	8.5
9	15.916	42,035	1.15	3,961	2,139	17.1	2.0	35.1	11.16	444	.48	.90	190	256	21.3	196	138	7.9
10	17.383	43,736	1.12	4,732	1,453	15.8	1.1	23.5	11.07	455	.56	.76	194	253	20.6	195	139	8.5
11	14.648	40,412	1.24	4,208	1,391	17.1	1.5	24.8	11.44	470	.42	.68	205	260	20.9	194	131	6.8
12	15.679	42,352	1.21	4,307	1,017	15.2	1.6	19.1	11.54	452	.74	.91	193	255	21.2	198	135	7.7
13	19.233	47,493	1.10	4,840	1,913	15.7	1.6	28.3	11.74	504	.68	.98	188	246	21.4	200	153	7.5
Total	115.812	305,446	....	30,700	10,551	....	....	....	....	....	....	....	....	....	....	....	....	....
Average	16.544	43,635.1	[1] 1.177	4,385.7	1,507.4	15.9	1.5	25.6	11.35	465	.57	.83	191	256	21.4	197	144	7.8

[1] Calculated from totals, not from averages of columns.

Four-hour 20-knot coal-test run.

[Place: Puget Sound Navy Yard. Date: Nov. 14, 1914. Coal under test: Matanuska. Boilers used: Nos. 1 to 16, inclusive.]

Hour.	Buckets coal.	Average weight of bucket.	Pounds.	Tons.	Buckets of ash.	Average weight of bucket.	Pounds.	Buckets of clinker.	Average weight of bucket.	Pounds.	Per cent of ash and clinker in coal, by weight.	Per cent of clinker in ash, by weight.	Smoke density.	Average per cent of CO_2.[1]	Average uptake temperature.[3]	Average R. P. M.	Knots per ton.	I. H. P. main engine.	Pounds of coal per horsepower per hour.	Steam pressure boiler.[3]	Feed pressure.[3]	Feed temperature.[3]	Damper.[3]	Ash-pan doors.[3]
1.30 to 2.30	688	96	66,048	29.485	....	....	....	....	....	....	....	....	3.04	....	....	117.63	.67	19,323.6	3.41	....	....	....	....	....
2.30 to 3.30	520	86	44,720	19.964	....	....	....	....	....	....	....	....	2.56	....	....	120.50	1.02	19,216.5	2.43	....	....	....	....	....
3.30 to 4.30	644	81	52,164	23.287	....	....	....	....	....	....	....	....	2.60	....	....	120.50	.87	20,887.7	2.49	....	....	....	....	....
4.30 to 5.30	330	89	29,370	13.112	....	....	....	....	....	....	....	....	2.98	....	....	120.00	1.54	20,288.8	1.44	....	....	....	....	....
Total	2,182	352	192,302	85.848	408	69.99	28,559	140	52.75	7,362	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Average	545.5	88	48,075	21.462	....	....	....	....	....	....	[4] 18.67	[4] 25.77	2.80	8.41	451	[5] 119.7	[4] .93	19,929.15	[4] 2.41	243	289	166	.60	.85

[1] 32 samples.

[2] 80 readings.

[3] 32 readings.

[4] Calculated from totals.

[5] Figured from total counter readings for 4 hours.

Remarks: Air pressure, 1.34 inches. Firing bell set for 8 minutes. Fires carried, 8 to 10 inches thick.

NOTE.—Average coal weights obtained by weighing continuously and taking average of 10 buckets for each hour's weight.

Twenty-four-hour, 15-knot, coal-test run.

[Place: Port Angeles to San Francisco. Date: 10.45 a. m. Nov. 15, 1914, to 10.45 a. m. Nov. 16, 1914. Coal under test: Matanuska (Alaska). Boilers used: Nos. 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16.]

Watch.	Coal consumed.				Ash and clinker produced.							
	Buckets of coal.	Average weight of bucket.	Pounds.	Tons.	Buckets of ash.	Average weight of bucket.	Pounds.	Buckets of clinker.	Average weight of bucket.	Poun ds.	Per cent of ash and clinker in coal by weight.	Per cent of clinker in ash by weight.
Nov. 15.												
10.45 to noon	205	80.00	16,400	7.321	....	....	....	....	....	....	....	....
12 to 4	563	87.55	49,291	22.005	(1)	....	....	2	32.00	64	0.1	....
4 to 8	755	89.30	67,421	30.099	140	65.50	9,170	29	50.79	1,473	15.8	13.8
8 to 12	846	87.35	73,898	32.090	96	66.09	6,402	57	56.56	3,224	13.0	31.8
Nov. 16.												
12 to 4	732	89.25	65,331	29.166	136	61.04	8,301	29	53.58	1,554	15.1	15.7
4 to 8	698	76.00	53,048	23.682	69	60.52	4,776	42	60.85	2,556	13.8	34.9
8 to 10.45	425	81.00	35,502	15.849	175	67.55	11,823	61	54.66	3,344	42.4	22.0
Total	4,224	590.45	360,891	160.212	616	....	40,472	220	....	12,215	....	....
Average	704	84.35	60,148.5	26.852	102.6	65.74	6,745.3	36.6	55.62	2,035.8	[2] 14.59	[2] 23.19

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[1] Reburned.

[2] Calculated from totals, not from averages of columns.

Twenty-four-hour, 15-knot, coal-test run—Con[illegible]

Watch.	Smoke density.	Average per cent of CO_2.	Average uptake temperature (degrees).	Average R.P.M.	Knots per ton.	I. H. P. main engines.	Pounds coal per horsepower per hour.	Feed pressure.	Steam pressure boiler.	Feed temperature.	Dampers.	Ash-pan doors.	Remarks.
Nov. 15.													
10.45 to noon	1.50	7.44	[1] 300	85	2.56	5,780.6	2.26	263	220	195	0.50	0.39	Pyrometer not functioning properly.
12 to 4	2.08	8.57	[1] 379	85	2.73	6,131.6	2.01	258	215	184	.50	.64	Pyrometer not functioning properly; cut out Nos. 4 and 6 boilers.
4 to 8	2.40	8.78	454	85	1.99	5,948.8	2.83	260	208	188	.56	.73	Stopped 7.20; went ahead 7.24; No. 16 boiler banked.
8 to 12		8.90	410	85	1.82	6,261.5	2.95	274	214	182	.50	.20	
Nov. 16.													
12 to 4		8.98	449	85	2.06	5,891.1	2.77	281	219	181	.55	1.00	Fires during test between 6 and 8 inches heavy; firing interval 9 minutes.
4 to 8		9.38	427	85	2.53	6,137.6	2.16	264	216	193	.85	.93	
8 to 10.45	2.00	10.00	430	85	2.60	5,572.5	2.32	255	209	190	.68	.50	
Total													
Average	1.99	8.86	434	85	[2] 2.23	6,142.37 [3] 6,800	[2] 2.447 [3] 2.21	265	216	188	.59	.50	

[1] Not considered in figuring average.

[2] Calculated from totals, not from averages of columns.

[3] As the horsepower obtained by taking cards each watch came much lower than those obtained on previous similar tests the result is given with the horsepower taken from a standard curve.

NOTE.—At end of test 1,980 pounds soot were removed from boilers used.

Forty-eight-hour, 10-knot coal test.

[Place: Port Angles to San Francisco. Date: 12 noon Nov. 16, to 4 a. m. Nov. 18, 1914. Coal under test: Matanuska. Boilers Nos. 9, 10, 11, and 12; 13 and 14 part of time.]

Watch.	Coal consumed.				Ash and clinker produced.							
	Buckets of coal.	Average weight of bucket.	Pounds.	Tons.	Buckets of ash.	Average weight of bucket.	Pounds.	Buckets of clinker.	Average weight of bucket.	Pounds.	Per cent of ash and clinker in coal by weight.	Per cent of clinker in ash by weight.
Nov. 16.												
12 to 4 p. m.	277	94.30	26,121	11.661	....	....	....	....	....	....	....	....
4 to 8 p. m.	322	90.50	29,141	13.009	....	....	....	....	....	....	....	....
8 to 12 p. m.	335	87.70	29,379	13.115	63	67.28	4,239	35	59.22	2,073	21.5	32.8
Nov. 17.												
12 to 4 a. m.	249	91.15	22,696	10.133	58	66.44	3,854	23	52.60	1,210	22.3	28.8
4 to 8 a. m.	326	83.85	27,335	12.203	45	55.00	2,475	11	60.00	660	11.5	21.0
8 to 12 a. m.	309	87.95	27,177	12.132	32	63.91	2,045	19	61.10	1,161	11.8	36.2
12 to 4 p. m.	355	94.05	33,388	14.905	53	73.71	3,907	29	67.34	1,953	17.6	33.3
4 to 8 p. m.	318	85.25	27,109	12.102	58	66.12	3,864	21	52.66	1,104	18.3	22.2
8 to 12 p. m.	320	87.90	28,728	12.825	33	62.91	2,076	20	....	1,076	10.9	33.9
Nov. 18.												
12 to 4 a. m.	235	81.00	19,035	8.497	69	75.85	5,234	99	....	5,427	56.0	50.9
Total	3,046	....	270,109	120.582	301	....	27,694	257	....	14,664	....	....
Average	....	88.36	27,011	12.058	47.6	66.40	2,769	25.7	58.82	1,466	[1] 15.67	[1] 34.6

[1] Calculated from totals, not from averages of columns.

Forty-eight-hour, 10-knot coal test—Continued.

Watch.	Smoke density.	Average per cent of CO_2.	Average uptake temperature (degrees).	Average R.P.M.	Knots per ton.	I. H. P. main engines.	Pounds coal per horsepower per hour.	Steam-pressure boiler.	Feed pressure.	Feed temperature.	Dampers.	Ash-pan doors.	Remarks.
Nov. 16.													
12 to 4 p. m.	1.50	7.64	400	57	3.228	2,471.8	2.64	221	293	198	.50	.75	Banked Nos. 13 and 14 boilers.
4 to 8 p. m.	1.97	8.78	428	57	3.076	2,581.3	2.82	208	252	199	.50	.60	No. 13 cut out.
8 to 12 p. m.		9.17	428	57	3.048	2,401.4	3.06	206	272	197	.60	.47	No. 14 cut out.
Nov. 17.													
12 to 4 a. m.		8.82	420	57	3.924	2,306.6	2.46	224	281	199	.55	.61	
4 to 8 a. m.		8.35	418	57	3.276	2,159.04	3.16	216	258	198	.50	.39	Fires from 7 to 8 inches thick.
8 to 12 a. m.	2.20	9.31	423	57	3.296	2,700.6	2.51	214	251	201	.50	.67	Firing interval 9 to 12 minutes.
12 to 4 p. m.		9.40	449	57	2.684	3,114.73	2.67	205	300	200	.62	.97	
4 to 8 p. m.	1.75	8.77	421	57	3.304	2,899.8	2.38	216	314	198	.55	.84	
8 to 12 p. m.		9.60	417	57	3.116	2,890.2	2.39	213	257	193	.50	.47	
Nov. 18.													
12 to 4 a. m.		9.90	419	57	4.716	3,339.8	1.42	205	214	201	.55	.94	
Total						26,865.27							
Average	1.86	8.97	422	57	[1] 3.317	2,686.527	[1] 2.51	213	269	196	.54	.67	

[1] Calculated from totals, not from averages of columns

NOTE.—At end of test 1,355 pounds soot were taken from boilers used.

Recapitulation of tests.

[Matanuska (Alaska) coal, Nov. 6 to 18, 1914.]

Test.	Coal consumed.		Average density of coal.	Ash and clinker produced.				Average smoke density.	Average per cent of CO_2.	Average uptake temperature.	Average R. P. M.	Knots per ton.	Average I. H. P. main engine.	Pounds coal per horsepower per hour.
	Pounds.	Tons.		Pounds dry ash.	Pounds clinker.	Per cent ash and clinker in coal.	Per cent clinker in ash by weight.							
7-day port test	259,418.9	115.182	40.3	30,700	10,551	15.9	25.6	1.5	11.39	465	....	....	....	[1] 1.177
20-knot test	192,302.0	85.849	40.3	28,559	7,362	18.67	25.77	2.8	8.41	451	119.7	0.93	19,929.15	2.41
15-knot test	360,891.0	160.212	40.3	67,453	20,858	14.59	28.19	1.99	8.86	434	85.0	2.23	[2] 6,800	[2] 2.21
10-knot test	270,109.0	120.562	40.3	27,694	14,655	15.67	34.60	1.86	8.97	422	57.0	3.32	2,686.527	2.51

[1] Average gallons of water evaporated per pound of coal.

[2] Taken from standard curve.

Cruising radii.

Speed.	Average density.	Bunker capacity.		Average knots per ton.	Radius.
		Cubic feet.	Tons.		
					Knots.
20 knots	40.3	86,677	2,150.79	0.93	2,000.235
15 knots	40.3	86,677	2,150.79	2.23	4,796.262
10 knots	40.3	86,677	2,150.79	3.32	7,140.623

Forty-eight-hour, 10-knot coal test—Continued.

Watch.	Smoke density.	Average per cent of CO_2.	Average uptake temperature (degrees).	Average R.P.M.	Knots per ton.	I. H. P. main engines.	Pounds coal per horsepower per hour.	Steam-pressure boiller.	Feed pressure.	Feed temperature.	Dampers.	Ash-pan doors.	Remarks.
Nov. 16.													
12 to 4 p. m.	1.50	7.64	400	57	3.228	2,471.8	2.64	221	293	198	.50	.75	Banked Nos. 13 and 14 boilers.
4 to 8 p. m.	1.97	8.78	428	57	3.076	2,581.3	2.82	208	252	199	.50	.60	No. 13 cut out.
8 to 12 p. m.	....	9.17	428	57	3.048	2,401.4	3.06	208	272	197	.60	.47	No. 14 cut out.
Nov. 17.													
12 to 4 a. m.	....	8.82	420	57	3.924	2,306.6	2.46	224	281	199	.55	.61	
4 to 8 a. m.	....	8.35	418	57	3.276	2,159.04	3.16	216	258	198	.50	.39	Fires from 7 to 8 inches thick.
8 to 12 a. m.	2.20	9.31	423	57	3.296	2,700.6	2.51	214	251	201	.50	.67	Firing interval 9 to 12 minutes.
12 to 4 p. m.	....	9.40	449	57	2.684	3,114.73	2.67	205	300	200	.62	.97	
4 to 8 p. m.	1.75	8.77	421	57	3.304	2,899.8	2.33	216	314	198	.55	.84	
8 to 12 p. m.	....	9.60	417	57	3.116	2,890.2	2.39	213	257	193	.50	.47	
Nov. 18.													
12 to 4 a. m.	....	9.90	419	57	4.716	3,339.8	1.42	205	214	201	.55	.94	
Total	....	....	....	....	....	26,865.27	....	....	....	....	....	....	
Average	1.86	8.97	422	57	[1] 3.317	2,686.527	[1] 2.51	213	269	196	.54	.67	

[1] Calculated from totals, not from averages of columns

NOTE.—At end of test 1,355 pounds soot were taken from boilers used.

Recapitulation of tests.

[Matanuska (Alaska) coal, Nov. 6 to 18, 1914.]

Test.	Coal consumed.		Average density of coal.	Ash and clinker produced.				Average smoke density.	Average per cent of CO_2.	Average uptake temperature.	Average R. P. M.	Knots per ton.	Average I. H. P. main engine.	Pounds coal per horse-power per hour.
	Pounds.	Tons.		Pounds dry ash.	Pounds clinker.	Per cent ash and clinker in coal.	Per cent clinker in ash by weight.							
7-day port test	259,418.9	115.182	40.3	30,700	10,551	15.9	25.6	1.5	11.39	465	....	....	....	[1] 1.177
20-knot test	192,302.0	85.849	40.3	28,559	7,362	18.67	25.77	2.8	8.41	451	119.7	0.93	19,929.15	2.41
15-knot test	360,891.0	160.212	40.3	67,463	20,358	14.59	23.19	1.99	8.86	434	85.0	2.23	[2] 6,800	[2] 2.21
10-knot test	270,109.0	120.562	40.3	27,694	14,655	15.67	34.60	1.86	8.97	422	57.0	3.32	2,686.527	2.51

[1] Average gallons of water evaporated per pound of coal.

[2] Taken from standard curve.

Cruising radii.

Speed.	Average density.	Bunker capacity.		Average knots per ton.	Radius.
		Cubic feet.	Tons.		
					Knots.
20 knots	40.3	86,677	2,150.79	0.93	2,000.235
15 knots	40.3	86,677	2,150.79	2.23	4,796.262
10 knots	40.3	86,677	2,150.79	3.32	7,140.628

U. S. S. "MARYLAND."

First day.

4 A. M. TO 9.40 P. M., NOV. 7, 1914.

Watch, 4 to 8 a. m.; 8 to 12 noon; 12 to 4 p. m.; 4 to 8 p. m. Coal: Matanuska.

Time.	Gas analysis, per cent.					Boiler.	Test.	Remarks.
	CO_2.	CO_2 and O.	O.	CO_2 and O and CO.	CO.			
							Minutes.	
4.20	12.6	19.0	6.4	19.4	.4	8	20	Grab sample.
4.40	12.0	18.8	6.8	19.0	.2	8	20	Do.
5.00	10.8	18.6	7.8	19.0	.2	8	20	Do.
5.20	11.0	19.0	8.0	19.0	.0	8	20	Do.
5.40	11.6	19.0	7.4	19.0	.0	8	20	Do.
6.00	11.2	18.4	7.2	18.6	.2	8	20	Do.
6.20	12.4	18.6	6.2	19.0	.4	8	20	Do.
6.40	12.4	18.4	6.0	18.8	.4	8	20	Do.
7.00	12.0	18.6	6.6	18.6	.0	8	20	Do.
7.25	12.6	18.0	5.4	20.2	2.2	8	25	Do.
7.50	11.8	17.8	6.0	19.4	.6	8	25	Do.
8.20	12.4	18.0	5.6	20.2	2.2	8	30	Do.
8.40	13.0	19.0	6.0	19.4	.4	8	20	Do.
9.00	9.8	18.6	8.8	19.0	.4	8	20	Do.
9.25	11.2	19.2	8.0	19.2	.0	8	25	Do.
9.45	11.8	18.6	6.8	19.2	.6	8	20	Do.
10.00	12.0	18.2	6.2	20.0	1.8	8	15	Do.
11.15	12.4	18.2	5.8	18.2	.0	8	75	Dampers up.
11.30	11.6	18.4	6.8	19.0	.4	8	15	Grab sample.
11.45	11.2	17.6	6.4	19.0	.4	8	15	Do.
12.00	12.4	18.4	6.0	19.0	.6	8	15	Do.
12.30	10.6	18.4	8.8	18.4	.0	8	30	Do.
1.00	11.0	16.8	5.8	19.6	2.8	8	30	Do.
1.30	11.4	17.2	5.8	19.0	1.8	8	30	Do.
2.00	12.0	19.0	7.0	19.0	.0	8	30	Do.
2.30	12.0	19.0	7.0	19.0	.0	8	30	Do.
3.00	11.2	18.6	7.4	18.6	.0	8	30	Do.
3.30	12.0	18.2	6.6	18.8	.2	8	30	Do.
4.00	11.4	17.8	6.4	18.2	.4	8	30	Do.
4.15	11.6	17.4	5.8	19.2	.8	8	15	Do.
4.30	13.0	18.6	5.6	19.4	.8	8	15	Do.
4.45	10.2	16.6	6.4	17.0	.4	8	15	Do.
5.00	13.0	18.0	5.0	19.0	1.0	8	15	Do.
5.30	11.6	17.6	6.0	18.8	1.2	8	30	Do.
6.00	12.2	18.2	6.0	19.0	.6	8	30	Do.
6.30	11.2	18.6	7.4	19.0	.4	8	30	Do.
7.00	12.8	18.8	6.0	18.8	.0	8	30	Do.
7.30	12.2	18.6	6.4	18.6	.0	8	30	Do.
8.00	11.0	17.8	6.8	18.4	.6	8	30	Do.
8.20	8.2	16.2	6.0	17.4	1.2	8	20	Cleaning fires.
9.00	11.2	17.8	6.6	17.0	.8	8	40	Do.
9.20	8.8	15.4	6.6	14.6	.8	8	20	Grab sample.
9.40	8.6	15.2	6.6	11.6	3.6	8	20	Do.

9.40 P. M., NOV. 7, TO 4 A. M., NOV. 8, 1914.

Watch, 8 to 12 m.; 12 to 4 a. m. Coal: Matanuska.

							Minutes.	
10.00	9.8	16.6	6.8	14.4	2.2	8	20	Grab sample.
10.20	10.0	16.2	6.8	17.2	1.0	8	20	Do.
10.40	8.4	15.0	6.6	15.2	.2	8	20	Do.
11.00	11.8	18.2	6.4	18.8	.6	8	20	Do.
11.30	11.8	18.2	6.4	18.8	.6	8	20	Do.
11.40	12.0	16.6	4.6	17.0	.4	8	10	Do.
12.10	13.4	18.8	5.4	19.2	.4	8	30	Do.
1.10	11.8	18.6	6.8	19.0	.4	8	60	Do.
1.30	11.4	19.6	8.2	19.8	.2	8	20	Do.
1.50	13.4	18.4	5.0	18.4	.0	8	20	Do.
2.20	12.0	18.0	6.0	18.2	.2	8	30	Do.
2.45	11.8	19.0	7.2	19.0	.0	8	25	Do.
3.05	12.0	19.2	7.2	19.6	.4	8	20	Do.
3.20	11.6	18.8	7.2	19.2	.4	8	15	Do.
3.40	10.4	19.4	9.0	19.4	.0	8	20	Do.
Average	11.5	18.1	6.58	18.51	.44			

U. S. S. "MARYLAND"—Continued.

Second day.

4 A. M., NOV. 8, TO 4 A. M., NOV. 9, 1914.

Watch, 4 to 8 a. m.; 8 to 12 noon; 12 to 4 p. m.; 4 to 8 p. m., 8 to 12 m.; 12 to 4 a. m. Coal: Matanuska.

Time.	Gas analysis, per cent.					Boiler.	Test.	Remarks.
	CO_2.	CO_2 and O.	O.	CO_2 and O and CO.	CO.			
							Minutes.	
4.00	11.0	18.0	7.0	18.4	.4	8	20	Grab sample.
4.30	12.4	19.0	6.6	19.2	.2	8	30	Do.
5.00	12.0	18.0	6.0	18.6	.6	8	30	Do.
5.15	12.2	18.4	6.2	18.4	.0	8	15	Do.
6.00	10.0	19.6	9.6	19.6	.0	8	15	Do.
6.30	10.2	19.0	8.8	19.4	.4	8	30	Do.
7.00	11.8	17.4	6.6	18.6	1.2	8	30	Do.
7.30	11.0	19.4	8.4	19.4	.0	8	30	Do.
8.00	11.4	18.8	7.4	19.6	.8	8	30	Do.
8.30	11.6	18.8	7.2	18.8	.0	8	30	Do.
9.00	12.0	18.6	6.6	18.8	.2	8	30	Do.
9.15	10.0	19.6	9.6	19.6	.0	8	15	After cleaning fire.
9.40	11.2	19.2	8.0	19.4	.2	8	25	Grab sample.
10.10	12.0	18.2	6.2	18.6	.4	8	30	Do.
10.30	12.0	19.0	7.0	19.8	.8	8	20	Do.
10.50	11.4	18.6	7.2	18.6	.0	8	20	Do.
11.30	10.0	19.4	9.4	19.6	.2	8	40	Do.
12.00	11.8	18.8	7.0	18.8	.0	8	30	Do.
12.30	11.2	18.0	6.8	18.6	.6	8	30	Do.
1.00	11.4	17.6	6.2	18.6	1.0	8	30	Do.
1.30	10.4	18.2	7.8	18.4	.2	8	30	Do.
2.00	9.8	17.6	7.8	17.6	.0	8	30	Do.
2.30	11.6	17.2	5.6	18.2	1.0	8	30	Do.
3.00	10.6	18.0	7.4	18.4	.4	8	30	Do.
3.30	11.8	18.4	6.6	19.0	.6	8	30	Do.
4.00	10.0	17.8	7.8	18.4	.6	8	30	Do.
4.30	11.8	18.8	7.0	18.2	.4	8	30	Do.
5.00	13.4	19.0	5.6	19.4	.4	8	30	Do.
5.30	12.8	18.8	6.0	18.8	.0	8	30	Do.
6.00	10.0	19.2	9.2	19.4	.4	8	30	Do.
6.30	12.2	17.0	4.8	18.0	1.0	8	30	Do.
7.00	13.0	17.8	4.8	18.8	1.0	8	30	Do.
7.30	10.0	19.0	9.0	19.2	.2	8	30	Do.
8.00	12.0	19.2	7.2	19.2	.0	8	30	Do.
8.30	9.4	18.8	9.4	18.8	.0	8	30	Cleaning fire.
9.00	10.8	17.4	6.6	18.0	.6	8	30	Grab sample.
9.30	10.0	16.6	6.6	18.2	1.6	8	30	Do.
10.00	11.6	17.8	6.2	18.2	.4	8	30	Do.
10.30	12.4	18.4	6.0	18.6	.2	8	30	Do.
11.00	12.2	19.4	7.2	19.4	.0	8	30	Do.
11.30	9.8	19.2	9.4	19.2	.0	8	30	Do.
12.00	11.4	19.6	8.2	19.6	.0	8	30	Do.
12.30	9.6	17.8	8.2	18.2	.6	8	30	After cleaning fire.
1.00	9.8	18.4	8.6	18.4	.0	8	30	Grab sample.
1.30	9.4	19.0	9.6	....	....	8	30	Do.
2.00	9.6	18.0	8.4	18.2	.2	8	30	Do.
2.30	11.2	19.2	8.0	19.2	.0	8	30	Do.
3.00	10.0	18.0	8.0	18.2	.2	8	30	Do.
3.30	10.8	18.6	7.8	18.8	.2	8	30	Do.
4.00	9.4	18.0	8.6	18.4	.4	8	30	Do.
Average..	11.07	18.46	7.42	18.79	.33	....	....	

U. S. S. "MARYLAND"—Continued.

Third day.

NOV. 9 AND 10, 1914.

Watch, 4 to 8 a. m. 8 to 12 noon; 12 to 4 p. m.; 4 to 8 p. m.; 8 to 12 m.; 12 to 4 a. m. Coal: Matanuska.

Time.	Gas analysis, per cent.					Boiler.	Test.	Remarks.
	CO_2.	CO_2 and O.	O.	CO_2 and O and CO.	CO.		*Minutes.*	
4.30	10.4	18.8	7.4	19.0	.2	8	30	Dampers three-fourths up.
5.00	11.4	19.0	7.6	19.0	.0	8	30	Do.
5.30	11.8	19.4	7.6	19.8	.4	8	30	Do.
6.00	10.0	19.6	9.6	19.6	.0	8	30	Do.
6.30	10.8	19.8	9.0	19.8	.0	8	30	Do.
7.00	11.0	18.6	7.6	18.8	.2	8	30	Do.
7.30	9.8	18.8	9.0	18.8	.0	8	30	Do.
8.00	12.6	18.6	6.0	19.0	.4	8	30	Do.
8.30	11.8	18.0	6.2	18.2	.2	8	30	After cleaning fire.
9.00	11.0	19.0	8.0	19.0	.0	8	30	Grab sample.
9.30	12.0	19.2	7.2	19.8	.6	8	30	Do.
10.00	12.0	18.0	6.0	18.4	.4	8	30	Do.
10.30	13.8	18.0	4.2	18.4	.4	8	30	Do.
11.00	12.4	18.8	6.4	18.8	.0	8	30	Do.
11.30	11.6	18.4	6.8	19.0	.6	8	30	Do.
12.00	11.0	19.2	8.2	19.4	.2	8	30	Do.
12.30	9.6	19.0	9.4	19.0	.0	8	30	Do.
1.00	12.0	18.6	6.6	18.6	.0	8	30	Do.
1.30	12.2	18.8	6.6	18.8	.0	8	30	Do.
2.00	11.6	17.0	5.4	17.0	.0	8	30	Do.
2.30	10.4	17.4	7.0	18.0	.6	8	30	Do.
3.00	11.6	17.2	6.6	18.4	1.2	8	30	Do.
3.30	11.4	18.0	6.6	18.6	.6	8	30	Do.
4.00	10.8	17.0	6.2	18.2	1.2	8	30	Do.
4.30	11.2	17.4	6.2	18.2	.8	8	30	Do.
5.00	9.8	17.0	7.2	17.8	.8	8	30	Do.
5.30	10.6	18.4	7.8	18.4	.0	8	30	Do.
6.00	10.6	19.0	9.6	19.0	.0	8	30	Do.
6.30	11.8	18.4	6.6	18 6	.2	8	30	Do.
7.00	12.4	19.8	6.4	19.8	.0	8	30	Do.
7.30	12.0	19.4	7.4	19.4	.0	8	30	Do.
8.00	9.6	20.0	11.4	20.0	.0	8	30	Cleaning fire.
8.30	10.4	18.6	8.2	18.6	.0	8	30	Grab sample.
9.00	12.0	17.2	5.0	18.6	1.4	8	30	Do.
9.30	10.8	18.0	7.2	18.0	.0	8	30	Do.
10.00	10.6	18.4	7.8	18.8	.4	8	30	Do.
10.30	10.0	19.2	9.2	19.4	.2	8	30	Do.
11.00	....	....	....	....	....	....	....	Blowing tubes and hauling soot boxes.
11.30	12.2	18.0	5.8	18.2	.2	8	30	Grab sample.
12.00	12.6	18.8	6.2	18.8	.0	8	30	Do.
12.30	10.8	19.6	8.8	19.6	.0	8	30	Do.
1.00	10.6	20.0	9.4	20.0	.0	8	30	Do.
1.30	9.2	18.8	9.6	18.8	.0	8	30	Do.
2.00	9.6	19.0	9.4	19.4	.4	8	30	Do.
2.30	11.6	18.4	6.8	18.6	.2	8	30	Do.
3.00	10.2	18.2	8.0	18.6	.4	8	30	Do.
3.30	11.0	17.8	6.8	18.4	.6	8	30	Do.
4.00	11.6	17.8	6.2	18.0	.2	8	30	Do.
Average	11.15	18.54	7.41	18.78	.28	....	....	

U. S. S. "MARYLAND"—Continued.

Fourth day.

NOV. 10 AND 11, 1914.

Watch, 4 to 8 a. m.; 8 to 12 noon; 12 to 4 p. m.; 4 to 8 p. m.; 8 to 12 m.; 12 to 4 a. m. Coal: Matanuska.

Time.	Gas analysis, per cent.					Boiler.	Test.	Remarks.
	CO_2.	CO_2 and O.	O.	CO_2 and O and CO.	CO.		*Minutes.*	
4.30	10.0	18.8	8.8	19.0	.2	8	30	Grab sample.
5.00	11.4	19.0	7.6	19.0	.0	8	30	Cleaning fire at 4.30 and 5.30.
5.30	12.6	17.6	5.0	17.6	.0	8	30	Grab sample.
6.00	10.6	18.0	8.6	18.2	.0	8	30	Do.
7.00	11.8	17.0	5.2	18.0	1.0	8	30	Do.
7.30	10.4	16.6	6.2	17.2	.6	8	30	Do.
8.00	11.4	17.0	5.6	18.0	1.0	8	30	Do.
8.30	10.2	16.8	6.6	17.2	.4	8	30	Do.
9.00	9.8	16.0	7.8	17.0	1.0	8	30	Cleaning fires.
10.00	12.8	18.8	6.0	19.0	.2	8	30	Grab sample.
10.30	12.0	18.6	6.6	19.0	.4	8	30	Do.
11.00	12.0	19.0	7.0	19.0	.0	8	30	Do.
11.30	11.8	19.2	7.4	19.2	.0	8	30	Under forced draft, 11.30.
12.00	12.2	19.4	7.2	19.6	.2	8	30	Do.
12.30	10.0	19.2	9.2	19.2	.0	8	30	Do.
1.00	10.0	18.6	8.6	19.4	.8	8	30	Do.
1.30	11.0	18.0	7.0	18.0	.0	8	30	Do.
2.00	11.6	17.6	6.0	18.0	.4	8	30	Do.
2.30	11.0	17.2	6.2	17.2	.0	8	30	Do.
3.00	10.4	17.0	6.6	17.6	.6	8	30	Blowers secured at 3.
3.30	12.0	17.6	5.6	17.8	.2	8	30	Grab sample.
4.00	11.4	17.8	6.4	18.2	.4	8	30	Do.
4.30	10.0	17.6	7.6	17.8	.2	8	30	Do.
5.00	10.4	18.0	7.6	18.0	.0	8	30	Do.
5.30	11.2	17.8	6.6	17.8	.0	8	30	Do.
6.00	8.8	18.2	9.4	19.2	1.0	8	30	Do.
6.30	10.6	17.6	7.0	17.8	.2	8	30	Dampers up three-fourths.
7.00	11.2	17.6	6.2	17.8	.2	8	30	Grab sample.
7.30	10.4	17.2	6.8	17.4	.2	8	30	Do.
8.00	11.0	19.0	9.0	19.0	.0	8	30	Do.
8.30	11.8	18.8	7.0	19.0	.2	8	30	Dampers up one-half.
9.00	10.0	16.4	6.4	17.2	.8	8	30	Blowing tubes.
9.30	10.4	17.6	7.2	17.6	.0	8	30	Dampers up one-half.
10.00	9.0	18.6	9.6	18.6	.0	8	30	Do.
10.30	9.2	19.0	9.8	19.0	.0	8	30	Dampers and ash pans up.
11.00	12.2	18.6	6.4	19.0	.4	8	30	Grab sample.
11.30	12.4	18.8	6.4	19.0	.2	8	30	Do.
12.00	11.0	18.4	7.4	18.6	.2	8	30	Do.
12.30	12.6	18.4	5.8	18.8	.4	8	30	Do.
1.00	11.0	17.4	6.4	18.0	.6	8	30	Do.
1.30	12.0	17.2	5.2	17.8	.6	8	30	Do.
2.00	12.2	18.4	6.2	18.4	.0	8	30	Do.
2.30	11.6	17.2	5.6	18.2	1.0	8	30	Do.
3.00	12.0	18.0	6.0	18.0	.0	8	30	Do.
3.30	12.4	17.6	5.2	18.0	.4	8	30	Do.
4.00	11.4	18.2	6.8	18.6	.2	8	30	Do.
Average	11.11	17.98	6.98	19.71	.31	....	....	

U. S. S. "MARYLAND"—Continued.

Fifth day.

NOV. 11 AND 12, 1914.

Watch 4 to 8 a. m.; 8 to 12 noon; 12 to 4 p. m.; 4 to 8 p. m.; 8 to 12 m.; 12 to 4 a. m. Coal: Matanuska.

Time.	Gas analysis, per cent.					Boiler.	Test.	Remarks.
	CO_2.	CO_2 and O.	O.	CO_2 and O and CO.	CO.			
							Minutes.	
4.30	11.4	17.6	6.2	18.0	.4	8	30	Grab sample.
5.00	12.0	18.0	6.0	18.2	.2	8	30	Do.
5.30	11.6	17.6	6.0	17.6	.0	8	30	Do.
6.00	12.4	18.2	5.8	18.2	.0	8	30	Do.
6.30	12.6	17.8	5.2	18.2	.4	8	30	Do.
7.00	12.0	17.6	5.6	18.6	1.0	8	30	Do.
7.30	12.8	18.0	5.2	18.0	.0	8	30	Do.
8.00	12.8	17.8	5.0	18.0	.2	8	30	Do.
8.30	10.2	19.0	8.8	19.2	.2	8	30	Took after cleaning fires.
9.00	11.4	17.4	6.0	17.4	.0	8	30	Grab sample.
9.30	9.6	19.0	9.4	19.0	.0	8	30	Took after cleaning fires.
10.00	8.0	18.6	10.6	18.6	.0	8	30	Grab sample.
10.30	10.2	18.2	....	18.2	.0	8	30	Do.
11.00	11.8	18.2	6.4	18.2	.0	8	30	Do.
11.30	12.2	17.6	5.4	18.2	.6	8	30	Do.
12.00	12.6	19.4	6.8	19.8	.4	8	30	Do.
12.30	10.2	18.8	8.6	19.0	.2	8	30	Cleaning fires.
1.00[1]	10.2	19.0	8.8	19.0	.0	8	30	Do.
3.30	12.4	18.2	5.8	19.4	.8	8	30	Grab sample.
4.00	10.0	18.4	8.4	19.0	.6	8	30	Cleaning fires.
4.30	11.0	17.0	6.0	18.2	1.2	8	30	Grab sample.
5.00	11.2	18.2	7.6	19.4	1.2	8	30	Do.
5.30	12.2	17.8	5.6	18.0	.2	8	30	Do.
6.00	9.8	19.2	9.4	19.2	.0	8	30	Do.
6.30	11.6	17.6	6.0	17.8	.2	8	30	Do.
7.00	12.6	19.0	6.4	19.2	.2	8	30	Do.
7.30	12.0	19.4	7.4	19.4	.0	8	30	Do.
8.00	10.6	19.0	8.4	19.0	.0	8	30	Do.
8.30	11.0	18.6	7.6	18.6	.0	8	30	Took after cleaning fire.
9.00	10.4	19.2	8.8	19.4	.2	8	30	Grab sample.
9.30	11.8	18.8	7.0	18.8	.0	8	30	Do.
10.00	....	....	....	....	....	....	....	Blowing tubes and hauling soot boxes.
10.30	12.2	18.2	6.0	18.4	.2	8	30	Grab sample.
11.00	12.6	19.8	5.4	19.8	.0	8	30	Do.
11.30	11.8	17.6	5.6	17.8	.2	8	30	Do.
12.00	11.4	17.6	6.2	18.0	.4	8	30	Do.
12.30	12.8	18.8	6.0	18.8	.0	8	30	Dampers and ash pans up.
1.00	12.4	19.4	7.0	20.2	.8	8	30	Do.
1.30	12.2	19.2	7.0	19.4	.2	8	30	Grab sample.
2.00	13.0	17.8	4.8	18.6	.2	8	30	Do.
2.30	12.2	17.4	5.2	18.0	.6	8	30	Do.
3.00	13.6	18.8	5.2	19.6	.8	8	30	Do.
3.30	12.6	17.4	4.8	18.6	1.2	8	30	Do.
4.00	12.6	18.4	5.8	19.0	.6	8	30	Do.
Average	11.63	18.34	6.49	18.67	.31	....	....	

[1] 1 p. m. to 3.30 p. m. changing solutions in pipettes.

U. S. S. "MARYLAND"—Continued.

Sixth day.

NOV. 12 AND 13, 1914.

Watch 4 to 8 a. m.; 8 to 12 noon; 12 to 4 p. m.; 4 to 8 p. m.; 8 to 12 m.; 12 to 4 a. m. Coal: Matanuska.

Time.	Gas analysis, per cent.					Boiler.	Test.	Remarks.
	CO_2.	CO_2 and O.	O.	CO_2 and O and CO.	CO.			
							Minutes.	
4.30	12.0	18.4	6.4	18.4	.0	8	30	Grab sample.
5.00	11.6	18.4	6.8	18.4	.0	8	30	Do.
5.30	11.8	18.2	6.4	18.8	.6	8	30	Do.
6.00	11.6	19.0	7.4	19.2	.2	8	30	Do.
6.30	12.0	18.0	6.0	19.0	1.0	8	30	Do.
7.00	11.8	18.0	6.2	18.4	.4	8	30	Do.
7.30	11.4	18.6	7.2	18.6	.0	8	30	Do.
8.00	10.8	17.0	6.2	19.0	2.0	8	30	Do.
8.30	10.6	19.2	8.6	19.6	.4	8	30	Do.
9.00	10.4	19.6	9.2	19.6	.0	8	30	Do.
9.30	11.0	18.2	7.2	19.0	.8	8	30	Do.
10.00	11.0	19.0	8.0	19.2	.2	8	30	Do.
10.30	11.2	17.8	6.6	18.8	1.0	8	30	Dampers down.
11.00	12.0	17.6	5.6	18.6	1.0	8	30	Do.
11.30	12.4	19.2	6.8	19.2	.0	8	30	Do.
12.00	11.8	18.0	6.2	18.4	.4	8	30	Grab sample.
12.30	11.4	18.4	7.0	19.0	.6	8	30	Took after cleaning fire.
1.00	11.6	19.0	7.4	19.0	.0	8	30	Dampers one-half up.
1.30	11.2	18.2	6.8	18.4	.2	8	30	Do.
2.00	12.2	18.2	6.0	18.6	.4	8	30	Do.
2.30	12.0	17.2	5.2	18.2	1.0	8	30	Blowers were running from 2.35 to 2.40.
3.00	10.2	16.8	6.6	18.0	1.2	8	30	Grab sample.
3.30	11.4	17.6	6.2	18.4	.8	8	30	Do.
4.00	11.6	18.2	6.6	18.6	.4	8	30	Do.
4.30	12.0	17.2	5.2	18.0	.8	8	30	Do.
5.00	12.2	18.6	6.4	18.8	.2	8	30	Do.
5.30	12.0	18.4	6.4	18.8	.4	8	30	Do.
6.00	11.2	19.0	7.8	19.4	.4	8	30	Do.
6.30	12.0	19.0	7.0	19.6	.6	8	30	Do.
7.00	11.6	18.2	6.6	18.8	.6	8	30	Do.
7.30	11.4	18.0	6.6	18.2	.2	8	30	Do.
8.00	11.2	17.2	6.0	18.6	1.4	8	30	Do.
8.30	11.2	17.6	6.4	17.6	.0	8	30	Do.
9.00	11.8	18.2	6.4	19.6	1.4	8	30	Blowing tubes.
9.30	11.4	18.0	6.6	18.2	.2	8	30	Grab sample.
10.00	11.2	17.6	6.4	17.6	.0	8	30	Do.
10.30	13.0	18.0	5.0	18.4	.4	8	30	Do.
11.00	11.0	17.8	6.8	18.0	.2	8	30	Do.
11.30	11.6	17.6	6.0	17.6	.0	8	30	Do.
12.00	12.2	18.0	5.8	18.4	.4	8	30	Do.
12.30	13.0	19.2	6.2	19.2	.0	8	30	Took after cleaning fire.
1.00	11.0	18.8	7.8	18.8	.0	8	30	Do.
1.30	11.0	18.2	7.2	18.4	.2	8	30	Do.
2.00	11.0	17.8	6.8	18.0	.2	8	30	Do.
2.30	10.6	18.8	8.2	19.0	.2	8	30	Grab sample.
3.00	12.0	18.4	6.2	18.8	.4	8	30	Do.
3.30	10.6	17.6	7.0	17.6	.0	8	30	Do.
4.00	11.2	17.4	6.2	18.0	.6	8	30	Do.
Average	11.51	18.18	6.66	18.72	.45	....	....	

U. S. S. "MARYLAND"—Continued.

Seventh day.

NOV. 13 AND 14, 1914.

Watch 4 to 8 a. m.; 8 to 12 noon; 12 to 4 p. m.; 4 to 8 p. m.; 8 to 12 m.; 12 to 4 a. m. Coal: Matanuska.

Time.	Gas analysis, per cent.					Boiler.	Test.	Remarks.
	CO_2.	CO_2 and O.	O.	CO_2 and O and CO.	CO.			
							Minutes.	
4.30	11.0	19.0	8.0	19.0	.0	8	30	Grab sample.
5.00	13.6	19.2	5.6	19.4	.2	8	30	Do.
5.30	12.0	19.2	7.2	19.2	.0	8	30	Do.
6.00	12.6	19.0	6.4	19.0	.0	8	30	Do.
6.30	12.6	18.4	5.8	18.8	.4	8	30	Do.
7.00	12.8	18.6	5.8	18.6	.0	8	30	Do.
7.30	12.4	19.0	6.6	19.2	.2	8	30	Do.
8.30	11.4	17.2	5.8	19.0	1.8	8	60	Do.
9.00	10.6	16.8	6.2	18.0	1.4	8	30	Do.
9.30	10.4	16.4	6.0	18.0	1.6	8	30	Starting blowers.
10.00	10.4	18.0	7.4	18.2	.2	8	30	Do.
10.30	13.0	18.2	5.2	18.6	.4	8	30	Blowers secured.
11.00	12.0	18.6	6.0	18.6	.0	8	30	Grab sample.
11.30	11.8	17.4	5.6	18.0	.6	8	30	Do.
12.00	13.2	18.4	5.2	19.2	1.0	8	30	Do.
12.30	12.4	18.2	5.8	18.2	.2	8	30	Do.
1.00	10.6	17.4	6.8	18.4	1.0	8	30	Do.
1.30	12.4	17.8	5.4	18.4	.6	8	30	Do.
2.00	12.6	18.0	5.4	18.0	.0	8	30	2.30 to 2.15 charging solution.
2.30	13.0	17.6	4.6	18.0	.4	8	30	Grab sample.
3.30	11.8	17.6	5.8	18.0	.4	8	30	Do.
4.00	11.0	17.0	6.0	18.6	1.6	8	30	Took after cleaning fire.
4.30	10.6	19.2	8.6	19.2	.0	8	30	Grab sample.
5.00	11.0	19.0	8.0	19.0	.0	8	30	Do.
5.30	9.4	19.0	9.6	19.2	.2	8	30	Do.
6.00	9.0	19.0	10.0	19.0	.0	8	30	Do.
6.30	12.0	18.6	6.6	18.6	.0	8	30	Do.
7.00	12.4	19.0	6.6	19.2	.2	8	30	Do.
7.30	12.0	18.8	6.8	18.8	.0	8	30	Do.
8.00	10.0	18.4	8.4	18.6	.2	8	30	Do.
8.30	12.0	18.0	6.0	18.6	.6	8	30	Do.
9.00	12.2	19.8	7.6	19.8	.0	8	30	Do.
9.30	13.2	18.0	4.8	18.4	.4	8	30	Do.
10.00	12.4	19.2	6.8	19.4	.2	8	30	Do.
10.30	10.6	17.0	6.4	18.0	1.0	8	30	Do.
11.00	11.4	17.8	6.4	18.2	.4	8	30	Do.
11.30	12.2	17.4	5.2	17.4	.0	8	30	Do.
12.00	12.0	18.6	6.6	10.6	1.0	8	30	Do.
12.30	11.4	17.8	6.4	18.0	.2	8	30	Do.
1.00	10.8	18.4	7.6	18.8	.4	8	30	Do.
1.30	12.6	18.8	6.2	18.8	.0	8	30	Do.
2.00	12.8	18.8	6.0	18.2	.2	8	30	Do.
2.30	10.6	19.4	8.8	19.4	.0	8	30	Do.
3.00	11.2	18.4	7.2	19.0	.6	8	30	Do.
3.30	12.2	18.6	6.4	18.6	.0	8	30	Do.
Average	11.72	18.31	6.57	18.67	.39	....	....	

U. S. S. "MARYLAND"—Continued.

Port test by days.

NOV. 7 TO 14, 1914.

Coal: Matanuska (Alaska).

Time.	Gas analysis, per cent.				
	CO_2.	CO_2 and O.	O.	CO_2 and O and CO	CO.
First day	11.50	18.10	6.58	18.51	.44
Second day	11.07	18.46	7.42	18.79	.33
Third day	11.15	18.54	7.41	18.78	.23
Fourth day	11.11	17.98	6.90	19.71	.31
Fifth day	11.63	18.34	6.49	18.67	.31
Sixth day	11.51	18.18	6.66	18.72	.45
Seventh day	11.72	18.31	6.57	18.67	.30
Average	11.38	18.27	6.87	18.84	.36

Twenty-knot run.

NOV. 14, 1914.

Watch, 1.30 p. m. to 5.30 p. m. Coal: Matanuska.

Time.	Gas analysis, per cent.					Boiler.	Test.	Remarks.
	CO_2.	CO_2 and O.	O.	CO_2 and O and CO.	CO.			
							Minutes.	
1.38	6.6	19.4	12.8	20.0	.6	2	8	Grab sample.
1.45	7.2	18.6	11.4	18.6	.0	4	7	Do.
1.53	9.2	19.4	10.2	19.4	.0	5	8	Do.
2.00	9.0	19.2	10.2	19.2	.0	8	7	Do.
2.08	8.0	19.0	11.0	19.2	.2	10	8	Do.
2.15	7.0	19.0	12.0	19.4	.4	12	7	Do.
2.23	9.0	19.0	10.0	19.0	.0	14	8	Do.
2.30	8.6	18.8	10.2	19.0	.2	16	7	Do.
2.38	11.0	19.4	8.4	19.4	.0	1	8	Do.
2.45	9.0	19.2	10.2	19.2	.0	3	7	Do.
2.53	10.0	19.4	9.4	19.4	.0	5	8	Do.
3.00	9.0	18.8	9.8	19.2	.4	7	7	Do.
3.08	9.2	19.0	9.8	19.6	.6	9	8	Do.
3.15	10.2	18.6	8.4	18.6	.0	11	7	Do.
3.23	8.0	19.0	11.0	19.2	.2	13	8	Do.
3.30	9.0	18.0	9.0	18.0	.0	15	7	Do.
3.38	11.2	19.6	8.4	21.0	1.4	2	8	Do.
3.45	8.8	18.6	9.8	18.0	.0	4	7	Do.
3.53	8.2	19.0	10.8	20.0	1.0	6	8	Do.
4.00	10.2	19.2	9.0	19.8	.6	8	7	Do.
4.08	9.2	18.4	9.2	18.4	.0	10	8	Do.
4.15	7.0	18.0	11.0	18.4	.4	12	7	Do.
4.23	6.2	19.0	12.8	19.2	.2	14	8	Do.
4.30	9.2	18.0	8.8	18.8	.8	16	7	Do.
4.38	8.0	18.4	10.4	19.2	.8	1	8	Do.
4.45	8.0	19.0	11.0	19.0	.0	3	7	Do.
4.53	7.4	18.4	11.0	18.6	.2	5	8	Do.
5.00	8.4	18.2	9.8	18.6	.4	7	7	Do.
5.08	10.0	18.0	8.0	18.0	.0	9	8	Do.
5.15	8.2	18.4	10.2	19.2	.8	11	7	Do.
5.23	9.0	18.0	9.0	18.0	.0	13	8	Do.
5.30	10.2	19.2	9.0	19.2	.0	15	7	Do.
Average	8.72	18.78	10.62	19.08	.29	....	....	

U. S. S. "MARYLAND"—Continued.

Twenty-four-hour, 15-knot run.

NOV. 15, 1914.

Watch 10 to 12 noon; 12 to 4 p. m.; 4 to 8 p. m.; 8 to 12 m. Coal: Matanuska.

Time.	Gas analysis, per cent.					Boiler.	Test.	Remarks.
	CO_2.	CO_2 and O.	O.	CO_2 and O and CO.	CO.			
							Minutes.	
10.30	7.2	18.8	11.6	19.0	.2	7	20	Grab sample.
10.50	8.2	18.4	10.2	18.4	.0	9	20	Do.
11.10	8.6	18.0	9.4	18.2	.2	11	20	Do.
11.30	8.8	18.0	9.2	18.6	.6	13	20	Do.
12.00	4.4	19.0	14.6	19.4	.4	15	30	Do.
12.10	8.0	18.4	10.4	18.4	.0	8	10	Do.
12.30	8.2	19.4	11.2	19.4	.0	10	20	Do.
12.45	7.8	18.0	10.2	18.2	.2	12	15	Do.
1.00	9.0	19.0	10.0	19.0	.0	14	15	Do.
1.20	10.2	18.8	7.6	19.2	.4	16	20	Do.
1.40	7.4	18.2	10.8	18.8	.6	7	20	Do.
2.00	8.8	18.4	9.6	18.8	.4	9	20	Do.
2.20	8.6	18.4	9.8	19.0	.6	11	20	Do.
2.40	9.0	18.6	9.6	18.6	.0	13	20	Do.
3.00	7.8	18.2	10.4	18.2	.0	8	20	Do.
3.20	8.0	18.0	10.0	18.2	.2	10	20	Do.
3.40	10.0	19.6	9.6	19.6	.0	12	20	Do.
4.00	9.0	19.0	10.0	19.0	.0	12	20	Do.
4.20	8.2	19.2	11.0	19.2	.0	14	20	Do.
4.40	7.4	18.2	10.8	19.0	.8	16	20	Do.
5.00	10.2	18.0	7.8	18.0	.0	8	20	Do.
5.20	8.4	17.0	8.6	17.0	.0	10	20	Do.
5.40	8.6	18.2	9.6	18.4	.2	7	20	Do.
6.00	9.0	18.8	9.8	18.8	.0	9	20	Do.
6.20	8.6	18.2	9.6	18.4	.2	11	20	Do.
6.40	8.0	18.0	10.0	18.4	.4	13	20	Do.
7.00	10.0	18.4	8.4	18.8	.4	8	20	Do.
7.20	9.6	18.0	8.4	18.0	.0	10	20	Do.
7.40	8.4	17.8	9.4	18.2	.4	12	20	Do.
8.00	8.8	19.0	10.2	19.0	.0	14	20	Do.
8.20	6.6	18.8	12.2	19.2	.6	16	20	Do.
8.40	6.0	19.0	13.0	19.6	.6	7	20	Do.
9.00	9.0	19.2	9.2	19.2	.0	9	20	Do.
9.30	7.0	19.6	12.6	19.8	.2	11	30	Do.
10.00	7.2	19.2	12.0	20.0	.8	13	30	Do.
10.20	10.0	19.2	9.2	19.2	.0	8	20	Do.
10.40	7.8	19.2	11.4	19.4	.2	10	20	Do.
11.00	10.0	19.6	9.6	19.6	.0	12	20	Do.
11.20	8.6	19.4	10.8	19.8	.4	14	20	Do.
11.40	7.0	19.6	12.6	19.8	.2	7	20	Do.
12.00	8.8	19.2	10.4	19.4	.2	9	20	Do.

U. S. S. "MARYLAND"—Continued.

Twenty-four-hour, 15-knot run—Continued.

NOV. 16, 1914.

Watch 12 to 4 a. m.; 4 to 8 a. m.; 8 to 10.40 a. m. Coal: Matanuska.

Time.	Gas analysis, per cent.					Boiler.	Test.	Remarks.
	CO_2.	CO_2 and O.	O.	CO_2 and O and CO.	CO.			
							Minutes.	
12.02	6.8	18.8	12.0	18.8	.0	11	2	Grab sample.
12.20	7.2	18.4	10.2	18.4	.0	13	18	Do.
12.40	9.4	18.4	9.0	18.4	.0	8	20	Do.
1.00	8.0	21.0	13.0	21.0	.0	10	20	Do.
1.20	10.0	18.0	8.0	18.0	.0	12	20	Do.
1.40	8.4	19.8	11.4	20.2	.4	14	20	Do.
2.00	9.0	18.0	9.0	18.0	.0	7	20	Do.
2.20	10.0	18.8	8.8	18.8	.0	9	20	Do.
2.40	9.2	18.4	9.2	18.4	.0	11	20	Dampers one-half up.
3.00	8.0	18.8	10.8	18.8	.0	13	20	Grab sample.
3.20	12.0	17.4	5.4	18.0	.6	8	20	Do.
3.40	9.0	17.8	8.8	17.8	.0	10	20	Do.
4.15	8.4	18.2	9.8	18.2	.0	12	35	Do.
4.35	9.2	18.4	9.2	18.6	.2	14	20	Do.
4.55	9.6	19.0	9.4	19.0	.0	7	20	Do.
5.10	8.8	18.8	10.0	18.8	.0	9	15	Do.
5.25	8.6	20.0	11.4	20.2	.2	11	15	Do.
5.40	9.6	17.8	8.2	18.2	.4	13	15	Do.
6.00	10.2	18.6	8.4	18.6	.0	8	20	Do.
6.20	10.8	19.2	8.4	19.4	.2	10	30	Do.
7.00	9.4	18.8	9.4	18.8	.0	12	30	Do.
7.15	10.0	19.4	9.4	19.6	.2	14	15	Do.
7.30	9.2	17.4	8.2	17.8	.4	7	15	Do.
7.45	9.8	18.6	8.8	18.6	.0	11	15	Do.
8.00	8.0	19.0	11.0	19.0	.0	13	15	Do.
8.30	9.0	18.8	9.8	18.8	.0	11	30	Do.
9.00	10.0	18.0	8.0	18.0	.0	9	30	Do.
9.20	9.0	19.4	10.4	19.4	.0	7	20	Do.
9.40	11.6	18.6	7.0	18.8	.2	12	20	Do.
10.00	10.2	18.6	8.4	19.0	.4	14	20	Do.
10.20	9.0	18.2	9.2	18.2	.0	10	20	Do.
10.40	13.0	18.0	5.0	18.0	.0	8	20	Do.
10.45	10.2	18.2	8.2	18.4	.2	7	5	Do.
Average	8.71	18.64	9.78	18.81	.17	....	....	

Forty-eight-hour, 10-knot run.

NOV. 16, 1914.

Watch 12 to 4 p. m.; 4 to 8 p. m.; 8 to 12 p. m. Coal: Matanuska.

12.30	8.6	18.8	10.2	18.8	.0	9	30	Grab sample.
12.50	6.6	17.2	10.6	17.6	.4	11	20	Fires banked.
1.10	6.2	19.6	13.4	19.6	.0	13	20	Do.
1.30	6.0	20.0	16.0	20.0	.0	10	20	Do.
1.50	7.6	17.2	10.6	17.6	.4	12	20	Grab sample.
2.10	9.4	18.4	9.0	18.6	.2	14	20	Do.
2.30	7.0	18.2	11.2	18.4	.2	9	20	Do.
2.50	8.6	19.0	10.4	19.0	.0	11	20	Do.
3.10	7.4	18.6	11.2	18.6	.0	10	20	Do.
3.30	8.0	18.8	10.8	19.0	.2	12	20	Do.
4.00	8.6	19.0	10.4	19.0	.0	14	30	Do.
4.02	11.4	20.0	8.6	20.2	.2	9	2	Do.
4.20	11.2	18.6	7.4	19.0	.4	11	18	Do.
4.45	5.4	19.2	13.8	19.2	.0	10	25	Do.
5.00	8.0	19.0	11.0	19.0	.0	12	15	Do.
5.20	4.0	20.2	16.2	20.2	.0	14	20	Do.
5.40	8.6	18.0	9.4	....	....	....	20	Do.
6.00	7.0	19.0	12.0	19.2	.2	11	20	Do.
6.20	10.0	19.2	9.2	19.6	.4	9	20	Do.
6.40	9.0	18.0	9.0	18.0	.0	10	20	Do.
7.00	10.2	19.0	8.8	19.0	.0	12	20	Do.
7.20	10.6	18.8	8.2	18.8	.0	9	20	Do.
7.40	10.0	19.0	9.0	19.2	.2	11	20	Do.
8.00	6.4	18.0	11.6	18.6	.6	11	20	Do.
8.20	7.0	17.0	10.0	17.4	.4	9	20	Do.
8.40	9.0	18.6	9.6	19.2	.6	10	20	Cleaning fires.
9.00	11.0	18.4	7.4	18.4	.0	12	20	Grab sample.
9.20	10.0	19.0	9.0	19.0	.0	9	20	Do.
9.40	9.2	18.0	8.8	18.0	.0	11	20	Do.
10.00	9.0	18.4	9.4	18.4	.0	10	20	Do.
10.20	10.2	18.6	8.4	18.8	.2	11	20	Do.
10.40	8.4	18.0	9.6	18.4	.4	9	20	Do.
11.00	10.0	18.4	8.4	18.6	.2	12	20	Do.
11.20	9.6	18.0	8.4	18.0	.0	11	20	Do.
11.40	10.2	19.0	8.8	19.0	.0	9	20	Do.
12.00	9.2	18.0	8.8	18.0	.0	9	20	Do.

U. S. S. "MARYLAND"—Continued.

Forty-eight-hour, 10-knot run—Continued.

NOV. 17, 1914.

Watch 12 to 4 a. m.; 4 to 8 a. m.; 8 to 12 noon; 12 to 4 p. m.; 4 to 8 p. m.; 8 to 12 m. Coal: Matanuska.

Time.	Gas analysis, per cent.					Boiler.	Test.*	Remarks.
	CO_2.	CO_2 and O.	O.	CO_2 and O and CO.	CO.			
							Minutes.	
12.20	7.0	19.4	12.4	19.8	.4	11	20	Grab sample.
12.40	8.6	18.0	9.4	18.0	.0	10	20	Do.
1.00	11.0	18.4	7.4	18.4	.0	12	30	Do.
1.20	9.4	18.8	9.4	18.8	.0	9	20	Do.
1.40	7.8	17.6	9.8	18.2	.6	11	20	Do.
2.00	7.4	18.2	10.8	18.4	.2	10	20	Do.
2.20	9.0	18.4	9.4	18.4	.0	12	20	Do.
2.40	10.8	19.2	8.4	19.2	.0	9	20	Do.
3.00	9.6	18.8	9.2	18.8	.0	11	20	Do.
3.20	8.2	19.0	10.8	19.4	.4	10	20	Do.
3.40	7.8	17.4	9.6	17.6	.2	12	20	Do.
4.00	11.4	19.6	8.2	19.6	.0	9	20	Do.
4.30	6.4	19.0	14.6	19.2	.2	11	20	Cleaning fires.
5.00	9.6	18.4	8.8	18.8	.0	10	20	Grab sample.
5.30	6.0	18.6	14.6	18.6	.0	12	30	Do.
6.00	7.6	16.8	9.2	17.0	.2	9	30	Do.
6.30	9.0	18.8	9.8	18.8	.0	11	30	Do.
7.00	8.2	17.0	8.8	17.4	.4	10	30	Do.
7.30	8.6	17.2	8.6	17.2	.0	12	30	Do.
8.00	9.0	19.5	10.8	19.8	.0	9	30	Do.
8.30	10.2	19.6	9.4	19.6	.0	11	30	Do.
9.00	9.8	19.0	8.2	19.0	.0	10	30	Do.
9.30	9.4	18.6	9.2	18.6	.0	12	30	Do.
10.00	8.8	19.0	10.2	19.0	.0	11	30	Do.
10.30	9.0	19.6	10.6	19.6	.0	9	30	Do.
11.00	9.4	20.0	10.6	20.0	.0	10	30	Do.
11.30	9.8	19.6	9.8	19.6	.0	12	30	Do.
12.00	8.4	18.2	9.8	18.8	.6	11	30	Do.
12.30	9.6	18.4	8.8	18.4	.0	12	30	Do.
1.00	8.4	18.2	9.8	18.6	.4	11	30	Cleaning fires.
1.30	10.6	18.4	7.8	18.4	.0	10	30	Grab sample.
2.00	10.0	18.0	8.0	18.0	.0	9	30	Do.
2.30	10.6	18.6	8.0	19.2	.6	12	30	Do.
3.00	9.2	18.2	9.0	18.4	.2	10	30	Do.
3.30	8.8	17.8	9.8	18.2	.4	9	30	Do.
4.00	8.0	18.4	10.6	18.4	.0	10	30	Do.
4.30	9.0	17.8	8.8	18.0	.2	12	30	Do.
5.00	....	....	....	....	....	....	....	Changed solution.
6.00	8.2	19.0	10.8	19.2	.2	10	90	Grab sample.
6.30	8.0	17.6	9.6	18.0	.4	12	30	Do.
7.00	10.2	18.4	8.2	18.4	.0	9	30	Do.
7.30	7.0	19.0	12.0	19.2	.2	11	30	Do.
8.00	10.2	19.0	8.8	19.2	.2	10	30	Do.
8.30	6.4	19.6	13.2	20.0	.4	12	30	Do.
9.00	10.2	19.8	9.6	19.8	.0	11	30	Do.
9.30	10.4	18.8	8.4	18.8	.0	9	30	Do.
10.00	9.8	19.6	9.8	19.6	.0	10	30	Do.
10.30	10.6	19.8	9.2	20.0	.2	12	30	Do.
11.00	10.0	19.2	9.2	19.2	.0	9	30	Do.
11.30	9.8	19.8	10.0	19.8	.0	11	30	Do.

NOV. 18, 1914.

Watch 12 to 4 a. m. Coal: Matanuska.

							Minutes.	
12.00	11.0	18.4	7.4	19.0	.4	9	30	Grab sample.
12.30	10.4	18.2	7.8	19.0	.8	11	30	Do.
1.00	8.4	18.0	9.6	18.0	.0	10	30	Do.
1.30	9.6	18.4	8.8	18.4	.0	12	30	Do.
2.00	10.6	19.0	8.4	19.0	.0	9	30	Do.
2.30	10.0	19.2	9.2	19.4	.4	11	30	Do.
3.00	9.2	19.8	10.6	21.0	1.2	12	30	Do.
3.30	10.0	19.2	9.2	19.4	.2	10	30	Do.
Average	8.84	18.66	9.82	18.67	.16	....	....	

U. S. S. "MARYLAND"—Continued.

Seven-days' port test.

NOV. 7 TO 14, 1914.

Uptake temperatures. Pyrometer taken half hourly. Coal: Matanuska (Alaska).

Time.	Boiler No.	Temperatures. First day.	Second day.	Third day.	Fourth day.	Fifth day.	Sixth day.	Seventh day.
4.30	8	....	....	426	488	428	376	479
5.00	8	....	....	460	457	428	408	367
5.30	8	....	....	476	480	353	426	498
6.00	8	....	....	481	480	478	428	434
6.30	8	....	....	451	455	478	428	473
7.00	8	....	....	508	453	503	401	496
7.30	8	....	....	508	485	502	428	467
8.00	8	....	....	476	476	477	....	....

AWTCH, 8 TO 12 A. M.

Time.	Boiler No.	First day.	Second day.	Third day.	Fourth day.	Fifth day.	Sixth day.	Seventh day.
8.30	8	....	428	435	485	488	461	508
9.00	8	....	429	445	491	472	490	422
9.30	8	....	452	475	494	471	460	426
10.00	8	....	427	435	523	482	474	508
10.30	8	....	....	445	523	464	462	497
11.00	8	....	....	505	499	499	477	499
11.30	8	....	....	478	516	488	444	501
12.00	8	....	....	457	546	463	462	499

WATCH, 12 MERIDIAN TO 4 P. M.

Time.	Boiler No.	First day.	Second day.	Third day.	Fourth day.	Fifth day.	Sixth day.	Seventh day.
12.30	8	....	....	479	595	456	453	499
1.00	8	....	....	452	490	455	453	501
1.30	8	....	....	497	482	457	429	499
2.00	8	....	....	478	480	472	429	524
2.30	8	....	....	452	482	454	458	526
3.00	8	....	445	452	455	464	469	474
3.30	8	....	....	456	397	385	454	508
4.00	8	....	476	407	370	484	429	....

WATCH, 4 P. M. TO 8 P. M.

Time.	Boiler No.	First day.	Second day.	Third day.	Fourth day.	Fifth day.	Sixth day.	Seventh day.
4.30	8	....	....	482	457	457	442	496
5.00	8	....	500	434	425	430	434	496
5.30	8	....	492	409	449	484	428	508
6.00	8	....	470	438	452	434	442	525
6.30	8	....	....	468	428	442	478	528
7.00	8	....	....	499	426	455	482	539
7.30	8	....	....	532	424	460	457	532
8.00	8	....	....	511	424	473	478	538

WATCH, 8 P. M. TO 12 MIDNIGHT.

Time.	Boiler No.	First day.	Second day.	Third day.	Fourth day.	Fifth day.	Sixth day.	Seventh day.
8.30	8	....	458	495	416	443	477	484
9.00	8	....	480	493	400	433	452	472
9.30	8	....	450	511	396	458	477	474
10.00	8	....	452	453	402	....	452	528
10.30	8	....	476	457	377	431	477	472
11.00	8	....	504	484	391	383	477	476
11.30	8	....	352	482	430	406	476	478
12.00	8	....	353	480	407	406	439	476

U. S. S. "MARYLAND"—Continued.

Seven-days' port test—Continued.

NOV. 7 TO 14, 1914—Continued.

WATCH, 12 MIDNIGHT TO 4 A. M.

Time.	Boiler. No.	Temperatures.						
		First day.	Second day.	Third day.	Fourth day.	Fifth day.	Sixth day.	Seventh day.
12.30	8	....	....	455	428	404	480	424
1.00	8	....	....	455	403	378	448	480
1.30	8	....	....	455	428	379	448	476
2.00	8	....	....	405	320	404	471	502
2.30	8	....	....	480	478	367	471	502
3.00	8	....	....	480	478	379	351	....
3.30	8	....	....	455	476	391	346	422
4.00	8	....	....	480	478	378	346	451
Average	....	....	450	457	453	439	446	487

Average for the seven days, 456.

Average for port test, seven days, by days.

First day	..
Second day	450
Third day	457
Fourth day	453
Fifth day	439
Sixth day	446
Seventh day	487
Average	456

Four-hour, 20-knot run.

NOV. 14, 1914.

Uptake temperatures.

Watch 1.30 p.m. to 5.30 p.m. Coal: Matanuska (Alaska).

Boiler.	Temperature.	Boiler.	Temperature.	Boiler.	Temperature.
1	395	10	455	13	573
3	379	8	419	15	550
5	348	6	434	16	439
7	379	4	399	14	471
9	404	2	422	12	464
11	456	1	469	10	436
13	417	3	472	8	537
15	394	5	379	6	435
16	422	7	452	4	421
14	465	9	500	2	393
12	467	11	483	1	467
10	452	13	464	3	452
8	518	15	414	5	403
6	412	16	429	7	436
4	426	14	438	9	460
2	399	12	419	11	473
1	470	10	403	13	527
3	427	8	534	15	487
5	428	6	431	16	436
7	457	4	414	14	470
9	488	2	391	12	420
11	468	1	442	10	447
13	542	3	445	8	555
15	460	5	454	6	423
16	462	7	478	4	384
14	444	9	505	2	428
12	432	11	498		

Average for all boilers, 451.

U. S. S. "MARYLAND"—Continued.

Twenty-four-hour, 15-knot run.

NOV. 15 AND 16, 1914.

Uptake temperatures.

Watch 10.45 a. m. to 10.45 a. m. Coal: Matanuska (Alaska).

	Boilers.											
	No. 4.	No. 6.	No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.	No. 13.	No. 14.	No. 15.	No. 16.
10.45 to 12 noon	......	......	......	......	373	......	346	......	396	......	355	359
12 to 4 p. m.	(1)	(1)	400	368	383	388	361	592	383	375	......	381
4 to 8 p. m.	(1)	(1)	393	433	460	379	423	412	400	357	......	296
8 to 12 midnight	(1)	(1)	400	448	462	438	416	486	......	499	(1)	267
12 to 4 a. m.	(1)	(1)	......	459	433	430	......	455	429 460	432	(1)	......
4 to 8 a. m.	(1)	(1)	398	453	407	428	403	441	459	432	(1)	......
8 to 10.45 a. m.	(1)	(1)	......	484	......	400	470	460	459	424	......	......
Average	......	......	398	441	420	411	403	441	426	420	......	......

Average for all boilers, actual use, 421.
NOTE.—No. 16 boiler banked at intervals.

Forty-eight-hour, 10-knot run.

NOV. 16, 17, AND 18, 1914.

Uptake temperatures.

Watch 12 noon to 4 a. m. Coal: Matanuska (Alaska).

	Boilers.					
	No. 9.	No. 10.	No. 11.	No. 12.	No. 13.	No. 14.
12 to 4 p. m.	407	349	473	365	379	377
	446				(1)	(1)
4 to 8 p. m.	446	317	421	386	(1)	(1)
	348	390	480	411	(2)	(1)
8 to 12 midnight	440	415	473	386	(2)	(2)
	448	413	405	384	(2)	(2)
12 to 4 a. m.	453	366	415	406	(2)	(2)
	411	386	392	432	(2)	(2)
4 to 8 a. m.	438	411	408	411	(2)	(2)
	436	409	420	319	(2)	(2)
8 to 12 noon	447	410	390	424	(2)	(2)
	436					
12 to 4 p. m.	442	424	403	443	(2)	(2)
	450	430	451	471	(2)	(2)
4 to 8 p. m.	442	436		455	(2)	(2)
	455	438	474	454	(2)	(2)
8 to 12 midnight	438	382	442	469	(2)	(2)
			440			
12 to 4 a. m.	442	445	409	398	(2)	(2)
	412	436	382		(2)	(2)
	455	436	411	467	(2)	(2)
	442	407	422	384	(2)	(2)
Average	435	405	424	415	....	....

[1] Banked.

[2] Cut out.

Average for all boilers 48 hours (40 hours), 10-knot test, 420.

Pyrometer readings (uptake temperatures) for all tests of Matanuska coal.

Test.	Average.	No. of boilers.	
7-day port test	456	1	Average for No. 8 boiler.
20-knot test	451	16	Average for boilers 1 to 16, inclusive.
15-knot test	421	8	Average for boilers 7 to 14, inclusive.
10-knot test	420	4	Average for boilers 9 to 12, inclusive.

U. S. S. "MARYLAND"—Continued.

I. H. P. four hours' test, Matanuska coal.

Starboard engine.						Port engine.					Both engines.
Time.	H. P.	M. P.	F. L. P.	A. L. P.	Total.	H. P.	M. P.	F. L. P.	A. L. P.	Total.	Total.
1.35	1,143.4	1,317.3	723.1	876.9	7,646.3	1,811.5	1,463.0	963.2	903.0	9,823.5	
P. M	466.8	1,509.8	832.5	776.5		1,569.5	1,568.2	713.1	832.0		17,469.8
1.50	1,154.0	1,909.1	851.5	920.8	9,419.2	1,632.5	1,711.7	816.6	942.3	9,904.4	19,323.6
P. M	1,099.1	1,832.7	775.5	876.5		1,473.9	1,591.0	806.2	930.2		
2.30	1,521.1	1,817.5	810.6	814.0	9,500.9	1,553.8	1,757.9	753.8	910.9	9,715.6	19,216.5
P. M	1,207.5	1,696.1	830.6	803.5		1,473.9	1,591.0	806.1	868.2		
3.15	1,546.7	1,848.2	919.4	891.3	10,322.0	1,632.5	1,850.5	816.6	910.9	10,555.7	
P. M	1,391.5	1,906.3	875.9	942.7		1,637.7	1,909.1	868.2	930.2		20,877.7
4.15	1,545.2	1,825.1	814.1	880.2	10,198.3	1,546.5	1,850.5	816.7	879.4	10,090.5	
P. M	1,455.2	1,882.5	865.0	931.0		1,473.9	1,818.2	837.1	868.2		20,288.8
5.15	1,568.0	1,602.6	786.0	994.0		1,632.5	1,286.0	848.0	942.3		
P. M	1,396.2	1,575.4	775.5	872.6	9,570.3	1,264.0	1,681.8	837.1	868.2	9,359.9	18,930.2
5.30	1,406.1	2,268.0	1,210.5	1,319.6		1,323.3	1,943.0	942.2	1,099.3		
P. M	1,160.6	2,376.5	1,262.6	1,268.4	12,272.3	1,064.5	1,954.5	961.2	1,116.2	10,404.2	22,676.5

I. H. P. twenty-four hours' test, Matanuska coal.

Starboard engine.						Port engine.					Both engines.
Time.	H.P.	M.P.	F.L.P.	A.L.P.	Total.	H.P.	M.P.	F.L.P.	A.L.P.	Total.	Total.
Nov. 16	458.8		222.7	223.6		346.6	586.5	204.7	164.6		
10.45 a. m	460.0		219.7	198.7	1,783.5	514.2	521.6	210.9	153.7	2,703.1	
Nov. 15	651.9	697.8	155.9	223.6		432.5	622.6	222.5	222.5		
8.45 p. m	621.0	637.6	145.4	220.2	3,353.4	365.4	624.6	167.7	210.7	2,868.1	6,251.5
Nov. 15	579.5	681.6	240.5	214.7		462.5	589.8	217.9	249.2		
8.45 p. m	460.8	669.5	219.8	211.9	3,278.3	382.7	595.7	193.0	162.5	2,853.3	6,131.6
Nov. 15	555.3	551.7	258.0	250.5		444.3	606.2	213.6	213.6		
4.35 p. m	552.0	478.4	241.7	229.6	3,117.2	446.6	579.5	186.9	188.9	2,881.6	5,948.8
Nov. 16		568.0	160.3	214.6		426.0	524.3	182.4	204.7		
12.50 a. m		526.1	158.2	203.1	1,830.3	406.0	566.7	175.7	202.1	2,687.9	
Nov. 16	430.7	616.6	242.2	254.9		474.7	622.6	222.4	222.5		
6.30 a. m	419,8	632.7	250.5	264.9	3,117.3	481.4	579.4	197.7	219.6	3,020.3	6,137.6
Nov. 15	482.9	532.3	267.2	223.6		389.5	491.5	186.9	200.2		
11.35 a. m	437.0	503.8	219.8	220.8	2,887.4	394.4	483.0	197.7	342.6	2,685.1	5,572.5

I. H. P. 48-hour test, Matanuska coal.

Starboard engine.						Port engine.					Both engines.
Time.	H.P.	M.P.	F.L.P.	A.L.P.	Total.	H.P.	M.P.	F.L.P.	A.L.P.	Total.	Total.
Nov. 16	121.43	217.6	74.67	122.7	536.4	171.4	439.48	74.59	59.67	1,386.4	2,471.8
3.30 p. m	100.25	256.5	73.67	118.4	548.82	163.35	345.4	58.91	73.64		
Nov. 16	145.7	217.6	52.27	104.9	520.47	163.2	483.5	59.68	59.68	1,430.1	2,401.4
8.30 p. m	131.1	171.0	58.94	88.82	450.86	155.5	410.2	58.91	29.45		
Nov. 16	145.7	239.4	59.7	104.9	549.7	187.7	439.5	74.59	59.67	1,412.4	2,581.3
4.30 p. m	192.8	256.5	58.94	111.0	619.24	194.5	323.9	58.91	73.64		
Nov. 17	161.9	391.7	119.5	104.9	778.0	163.2	461.5	67.13	37.29	1,346.1	2,890.2
8.25 p. m	138.8	405.8	117.9	103.6	766.1	132.2	367.0	58.91	58.91		
Nov. 17	202.3	609.4	74.67	60.12	1,698.28	179.6	417.5	59.68	59.68	1,516.45	3,114.73
3.30 p. m	177.3	449.0	73.68	51.81		186.7	410.2	58.91	44.18		
Nov. 18	226.7	544.1	134.9	184.9	1,874.2	171.4	483.4	59.67	74.59	1,465.6	3,339.8
12.30 a. m	185.0	427.6	117.9	103.6		163.3	410.2	44.18	58.91		
Nov. 17	161.9	217.6	59.74	89.97	999.1	122.4	417.5	59.68	59.68	1,307.48	2,306.6
12.45 a. m	115.7	213.8	51.57	88.82		163.4	367.0	58.91	58.91		
Nov. 17	170.0	413.5	112.0	120.1	1,487.43	163.2	461.5	74.6	29.84	1,412.36	2,899.8
4.45 p. m	131.1	363.5	88.41	88.82		155.5	410.2	66.27	51.55		
Nov. 17	129.5	435.3	67.2	44.98	1,368.87	163.2	395.5	29.84	52.22	1,381.75	2,700.6
11.15 a. m	138.8	427.6	73.68	51.81		155.5	431.8	44.78	58.91		
Nov. 17	121.4	282.9	29.87	59.98	933.93	130.6	373.5	89.51	44.76	1,225.1	2,159.04
2.12 a. m	115.9	235.2	20.47	59.21		124.4	388.6	44.28	29.46		

NAVY DEPARTMENT,
BUREAU OF STEAM ENGINEERING,
Washington, D. C., October 16, 1914.

From: Bureau of Steam Engineering.
To: Commanding officer, U. S. S. *Maryland.*
Subject: Instructions for steaming tests Matanuska (Alaska) coal.

1. The bureau has been informed by the Department that the U. S. S. *Maryland* will conduct the steaming tests to be held with Matanuska coal mined in Alaska, and has been directed to draw up instructions for the tests.

2. At the present date 585 tons of this coal are in bags under cover at the navy yard, Puget Sound.

3. The bureau desires that the coal be carefully inspected to determine the appearance, friability, percentage of bone or slate, and the percentage and size of lumps. The number of cubic feet to the ton should be ascertained and reported.

4. The bureau desires a complete set of tests conducted as nearly as possible under the same conditions as obtained when the similar tests were made of Bering River and Pocahontas coal in 1913. The set of tests shall consist of—

(I). An uninterrupted period of not less than seven days in port, during which time steam shall not be upon the main engines for any purpose. The auxiliaries in use shall be the same as in the former tests, equal duty to be performed. If any discrepancy unavoidably occurs, it shall be noted and allowance made therefor as noted below.

(II). A test at sea with not more than three-fourths boiler power, and at a speed of about 15 knots. This test to last 24 hours.

(III). A test at sea under full boiler power at a speed of 20 knots. This test should last 4 hours.

(IV). A test at sea at a speed of 10 knots for a period of 48 hours, or as long as the amount of coal permits if more than 24 hours and less than 48.

The sequence of these four features of the test to be the same as in the tests with Bering River coal.

5. Upon receipt of the coal to be used in this set of tests a sample for chemical analysis will be taken and forwarded to the Bureau of Steam Engineering. Care must be used to make this sample represent as nearly as possible the average of the entire lot of coal. To this end small samples (a shovelful) should be taken throughout the coaling, small samples to be placed in one pile, divided into quarters, and two of the quarters rejected, the other two to be crushed, this quartering, rejecting, and crushing to continue until a final sample of about 4 pounds be obtained. This is the sample for transmittal in a sealed receptacle to the bureau for analysis.

6. The bureau desires that all data of the tests be prepared by a board to be appointed by you, with instructions to include all the data called for herein, arranged in tabular form.

7. Should there be any difference in the auxiliaries used and duty performed by them, the board should allow therefor.

8. In the tests underway every effort shall be made to keep the revolutions corresponding to the prescribed speed constant. Should discrepancy between the two tests unavoidably exist, the board

should reconcile coal consumption by the formula laid down in the rules for engineering competitions.

9. During the four-hour full-speed runs, indicator cards should be taken once per hour; in the other runs, once per watch. The pounds of coal per horsepower should be computed by the board and entered in an appropriate column of the tabular report. The cruising radius at each speed should be calculated and reported.

10. Copies of the engineer's log for the period of the tests should be submitted. The result of the flue gas analysis should also be reported.

On each test all data required by the rules for engineering competitions should be taken.

11. During the entire period of the test the strictest care must be taken to preserve the absolute accuracy of the coal accounts. The weight of the coal as originally received must be checked in as many ways as possible. These checks must be detailed in the board's report. The weight of the coal, as used on board ship, should be checked by frequent weighing of the buckets, as well as by inspection of the bunkers. The weight of the ash must be obtained accurately. The ash should be weighted dry, and not wet. The amount of clinker should be especially reported upon, and the board should attempt to determine the exact weight of the clinker. Any special difficulties in firing, or any special methods used in firing, should be described in the board's report.

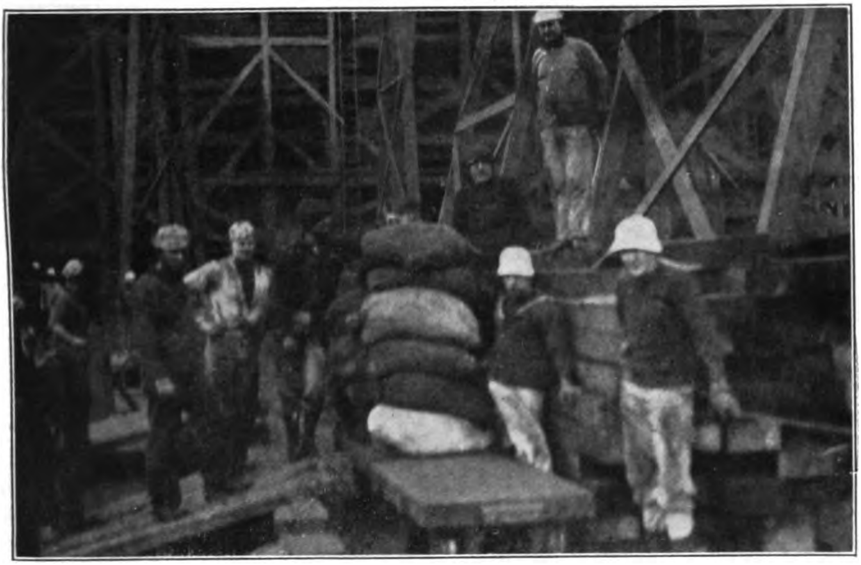
12. During each test the bureau requests that particular attention be paid to the effect upon the grate bars of the coal used. The number of grate bars that it is necessary to renew in order to put the boiler furnace in fit condition for further general use shall be noted at the conclusion of each test, and the result shall be included in the board's report. The bureau further desires to be informed concerning the amount of soot deposited on the boiler tubes. In each test special statements should be made of the frequency with which it is found necessary to clean the boiler tubes. The report should also state the amount of smoke made and the effect upon boiler casings of burning this coal. In reporting the amount of smoke use the Ringelmann scale and submit smoke records, together with appropriate photographs showing extreme and average conditions.

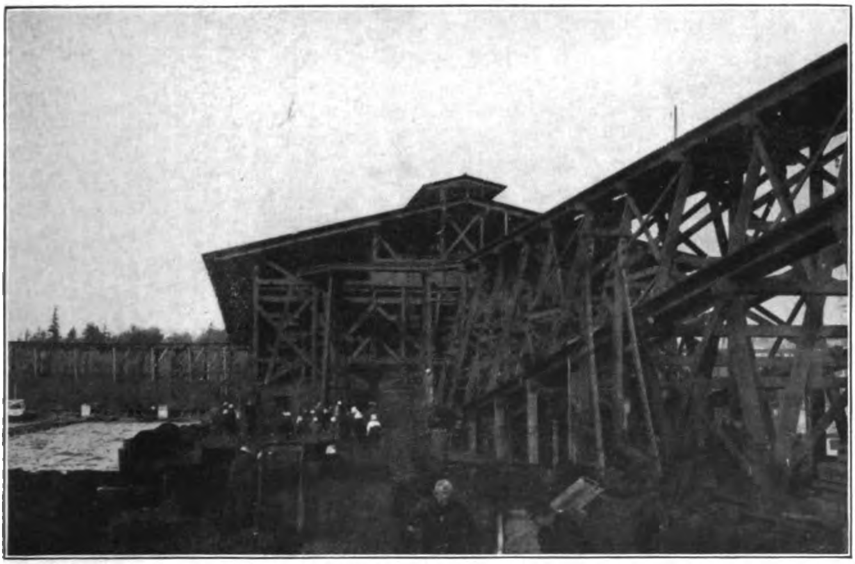
13. In view of the fact that the characteristics of Matanuska coal, so far as giving off of explosive gases are concerned, is unknown, extra precautions should be taken in entering bunkers.

14. In every test the report should include a complete description of any unusual characteristics or peculiarity of the fuel that is tested. If, for example, any tendency to spontaneous combustion is noted, or if any peculiar good or bad qualities are exhibited, the board's report should include a detailed statement of those qualities.

15. The report of the board should in each test include a specific recommendation stating whether or not the coal tested is recommended for future and more extended tests to determine its value for general naval use under standard service conditions.

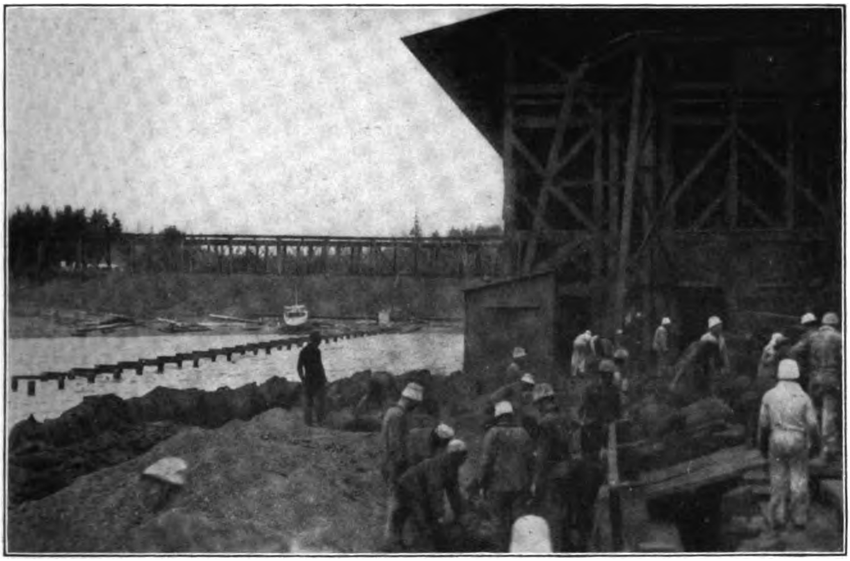
16. The bureau wishes a complete description of the action of the coal on the grate and the methods of firing. As many photographs as possible should be submitted in order to show the general appearance of the coal when received, the character of the ash and clinker,



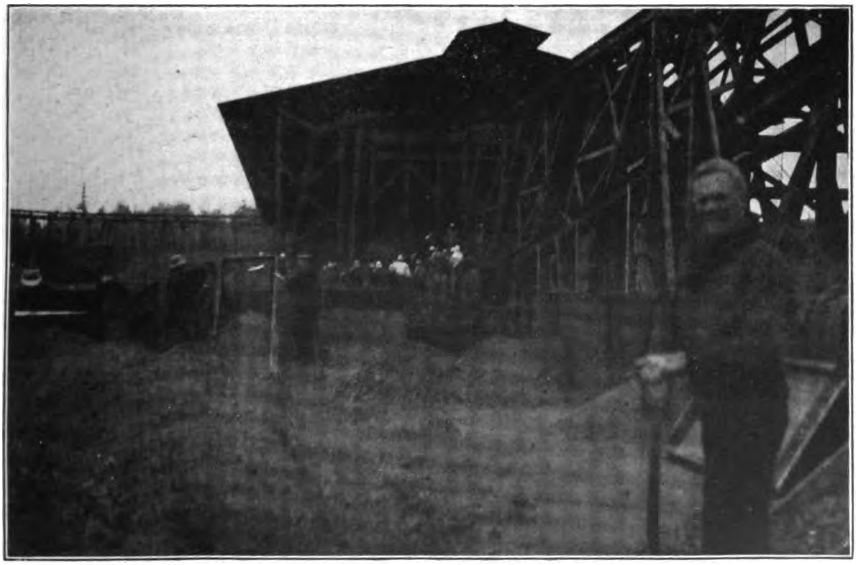


HANDLING AND INSPECTING MATANUSKA COAL. U. S. S. "MARYLAND" REPORT.

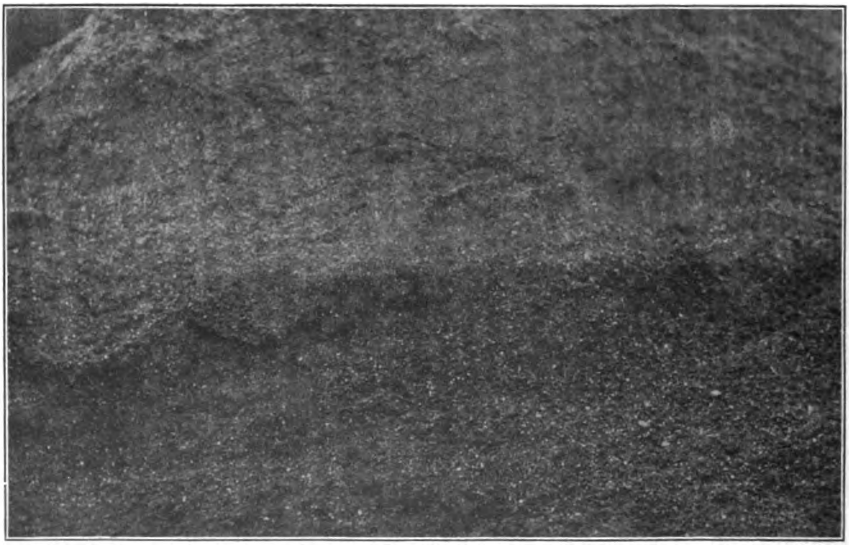
HANDLING AND INSPECTING MATANUSKA COAL. U. S. S. "MARYLAND" REPORT.



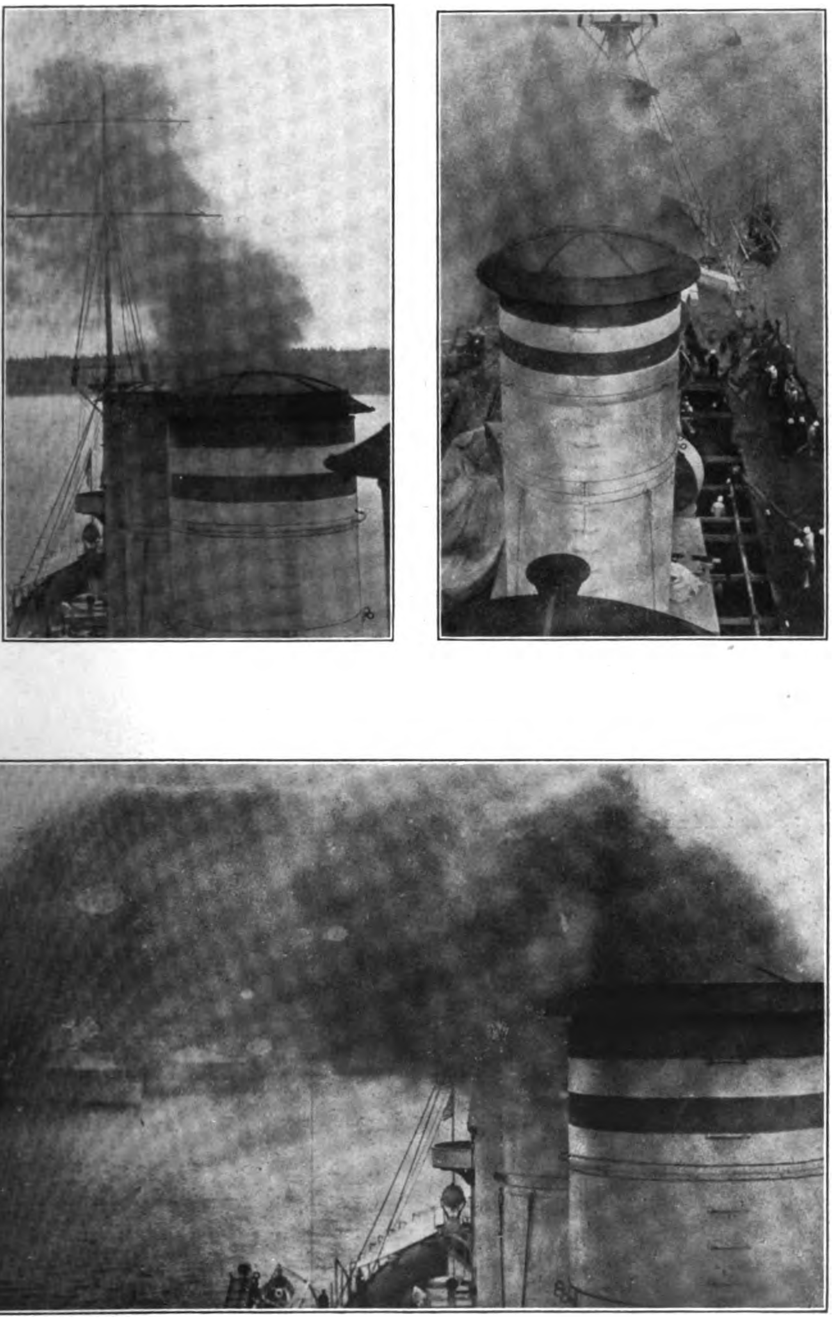
INSPECTING MATANUSKA COAL. U. S. S. "MARYLAND" REPORT.



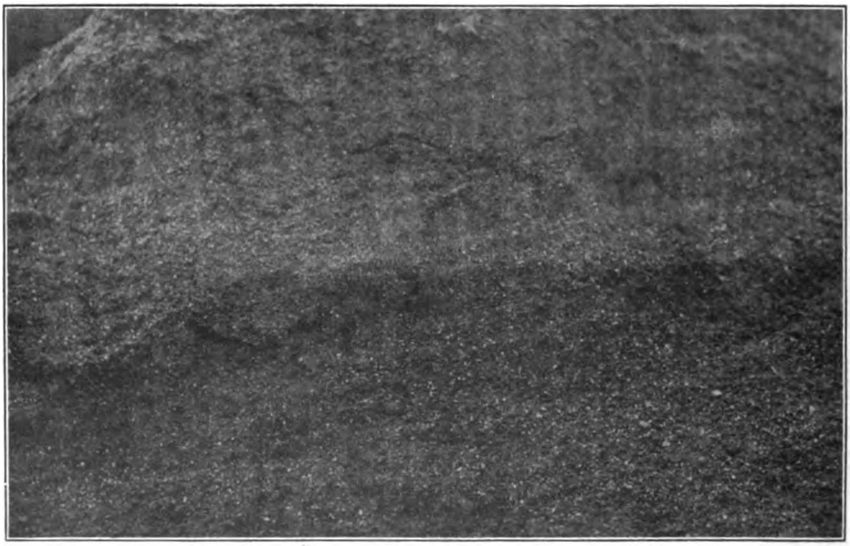
SCREENING 40 TONS MATANUSKA COAL FOR PORT TEST U. S. S. "MARYLAND."



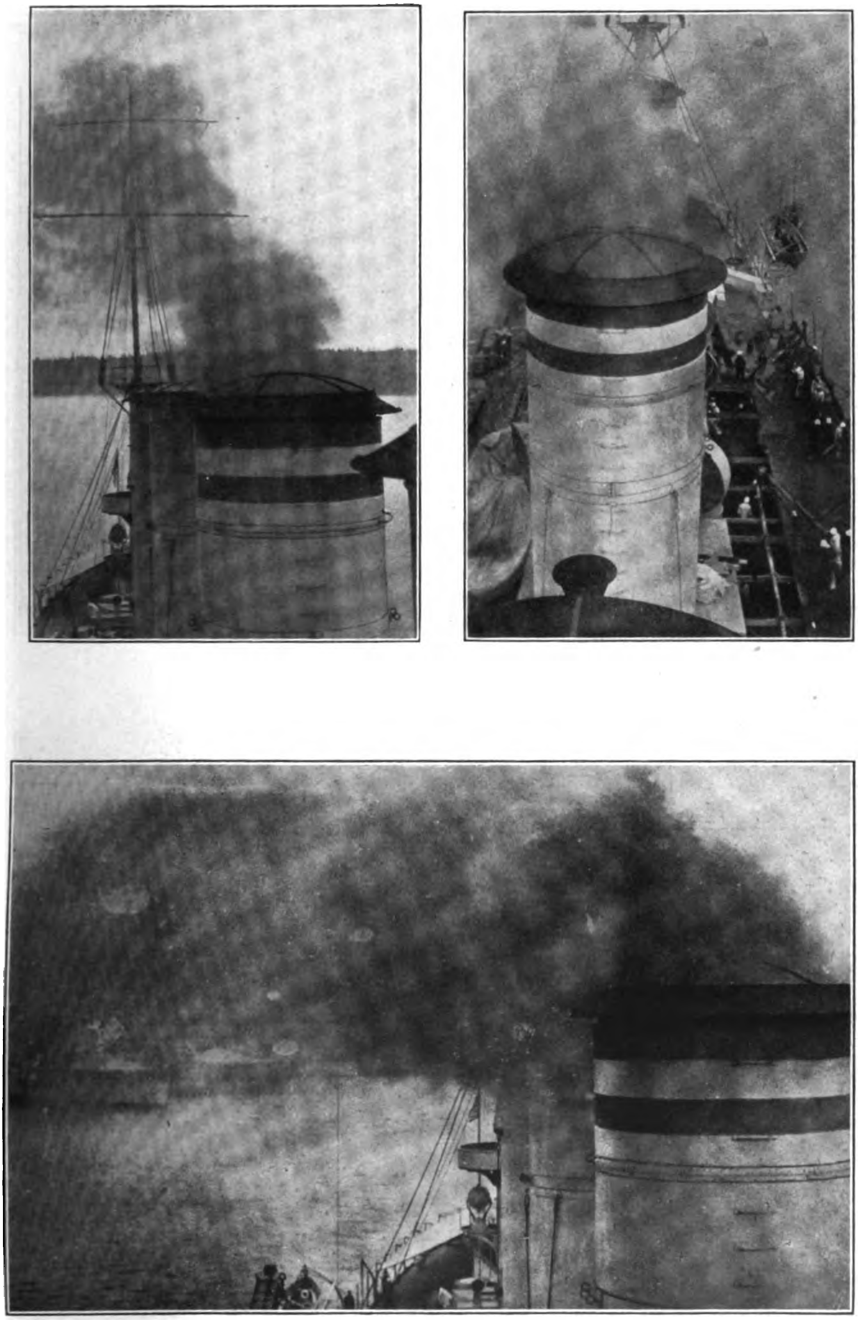
MATANUSKA COAL ON BARGES, NAVY YARD, PUGET SOUND.



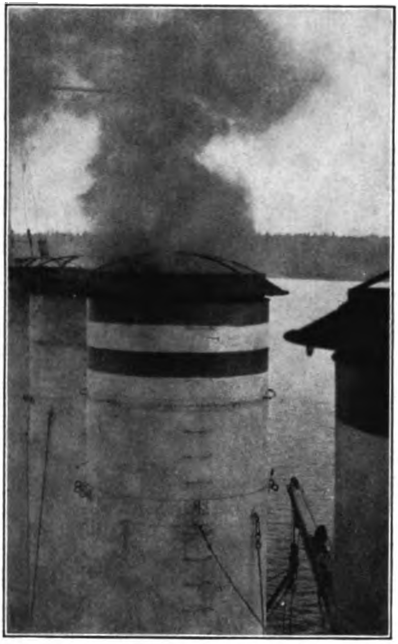
SMOKE FROM MATANUSKA COAL, U. S. S. "MARYLAND" PORT TEST.

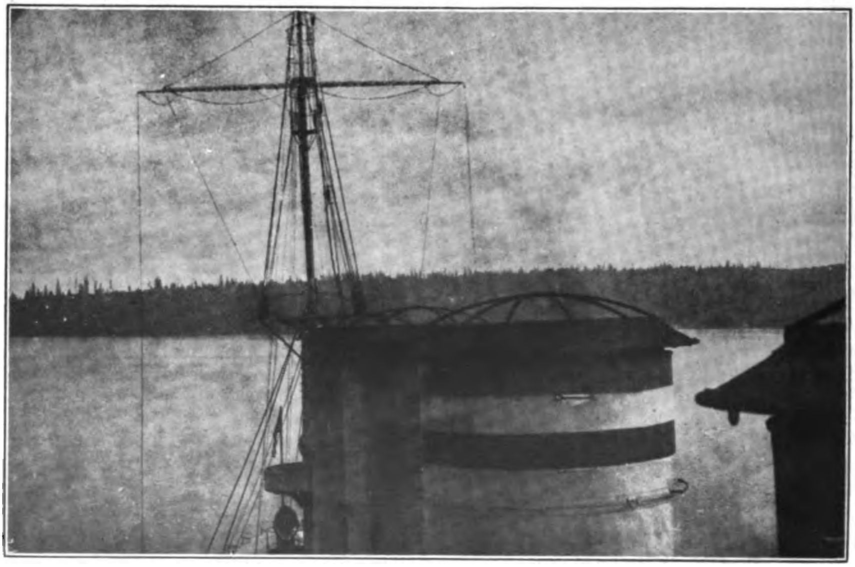


MATANUSKA COAL ON BARGES, NAVY YARD, PUGET SOUND.

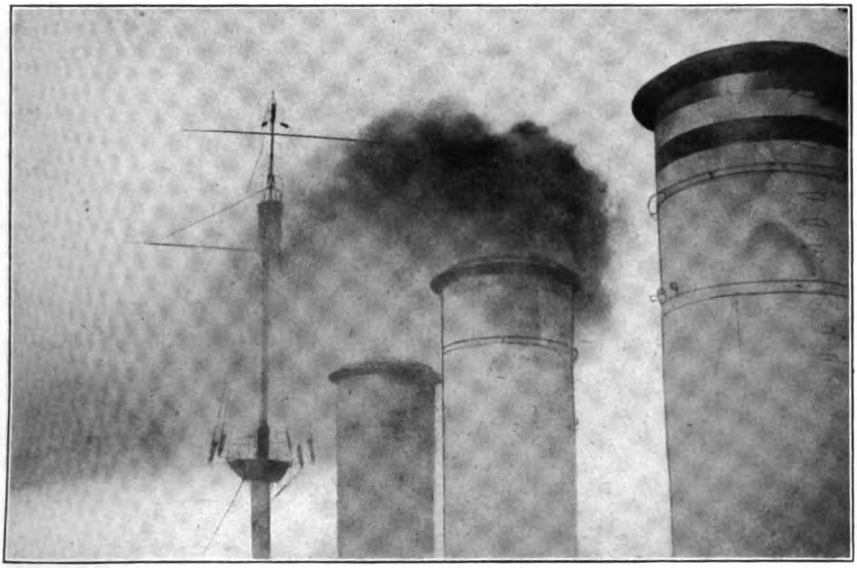


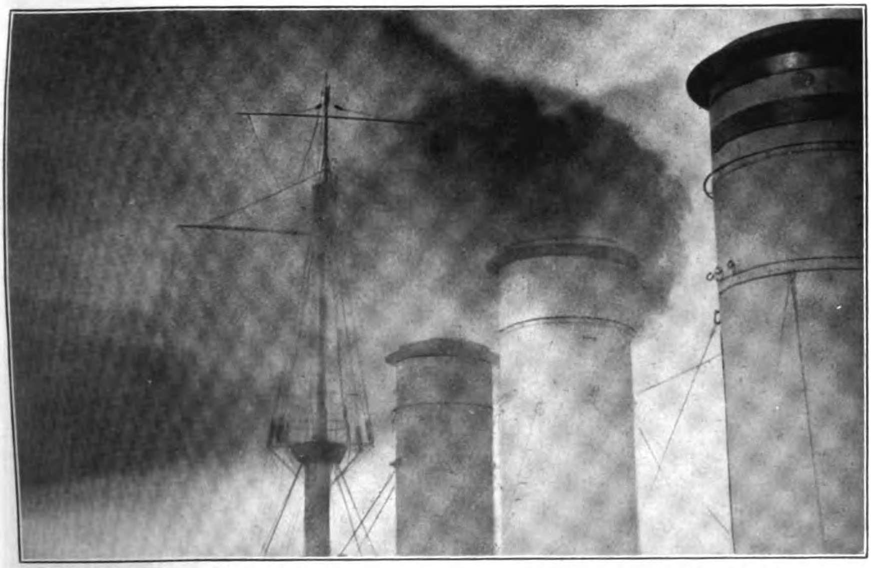
SMOKE FROM MATANUSKA COAL, U. S. S. "MARYLAND" PORT TEST.



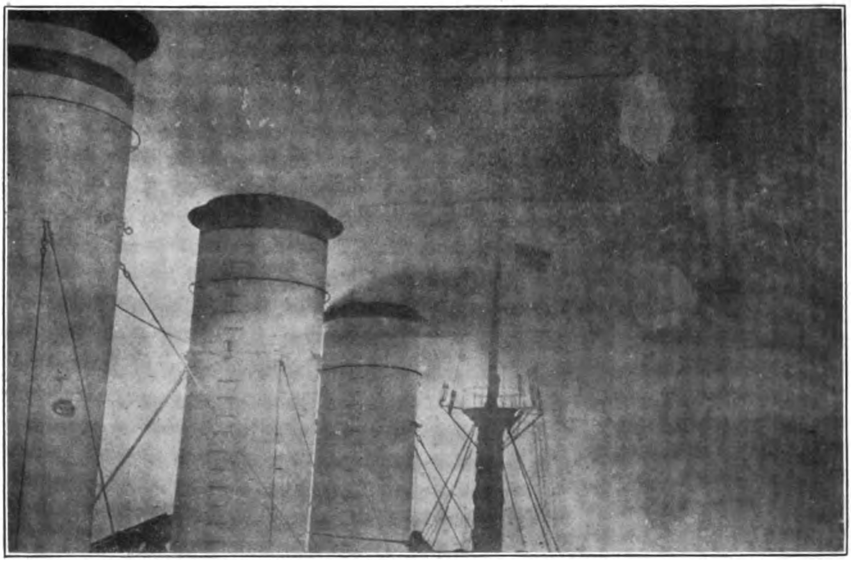


SMOKE FROM MATANUSKA COAL, U. S. S. "MARYLAND" PORT TEST.

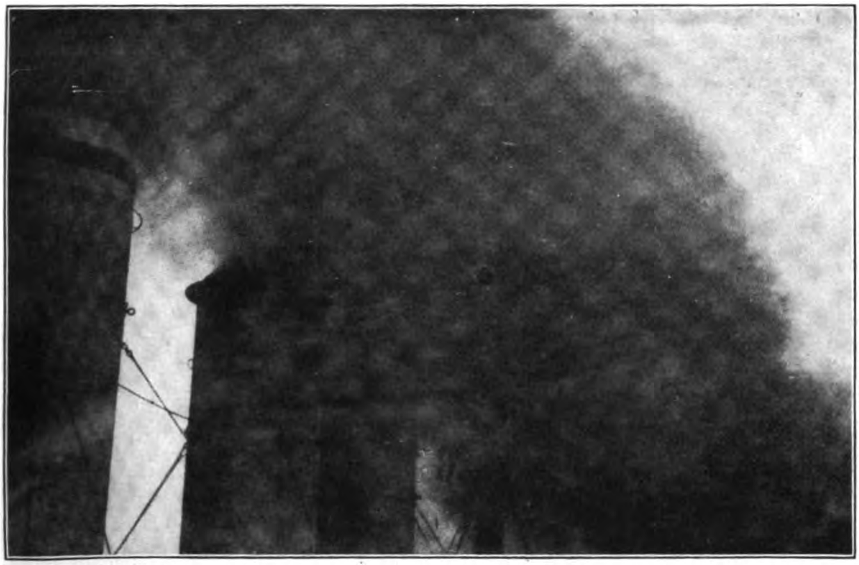


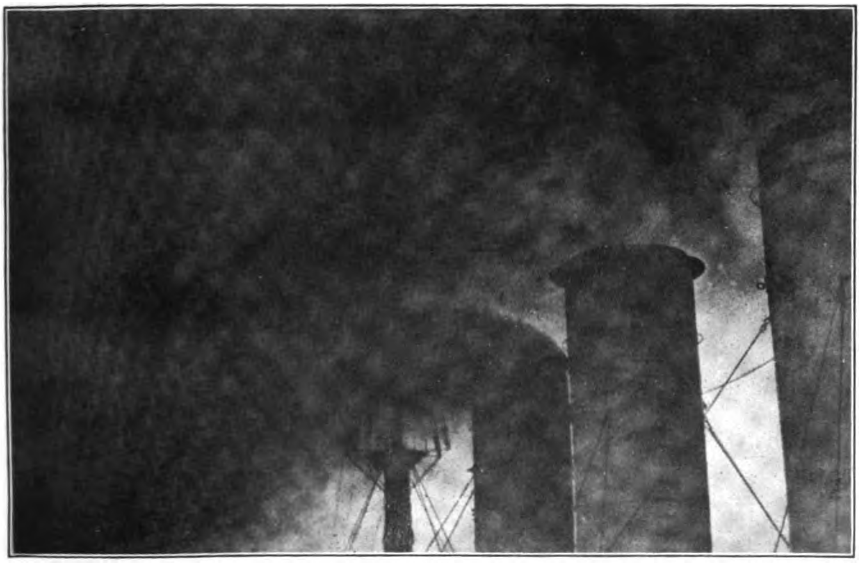


SMOKE FROM MATANUSKA COAL, U. S. S. "MARYLAND" 10-KNOT TEST.



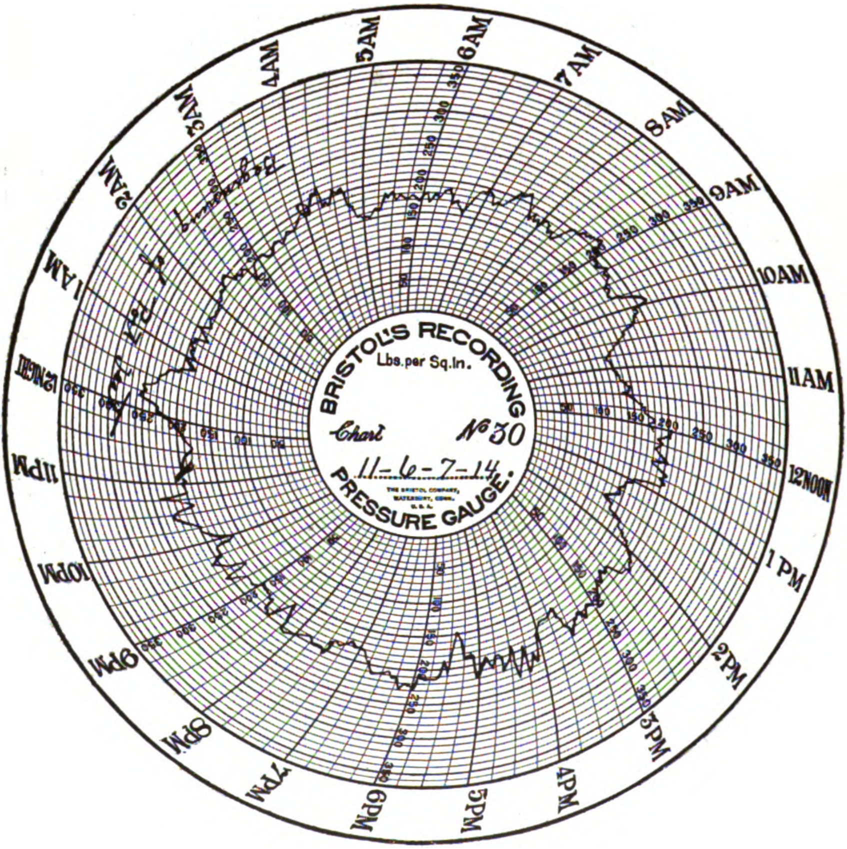
SMOKE FROM MATANUSKA COAL, U. S. S. "MARYLAND" 15-KNOT TEST.





SMOKE FROM MATANUSKA COAL, U. S. S. "MARYLAND," 20-KNOT TEST.

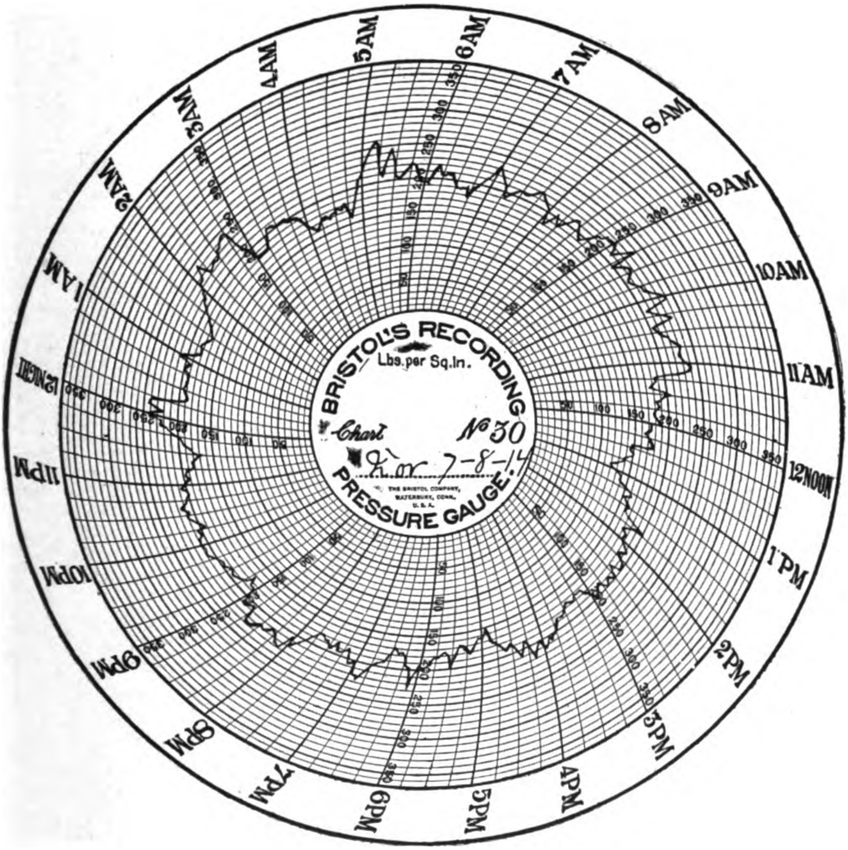
Pressure-Gauge Chart No. 1, U. S. S. "Maryland."



PORT TEST.

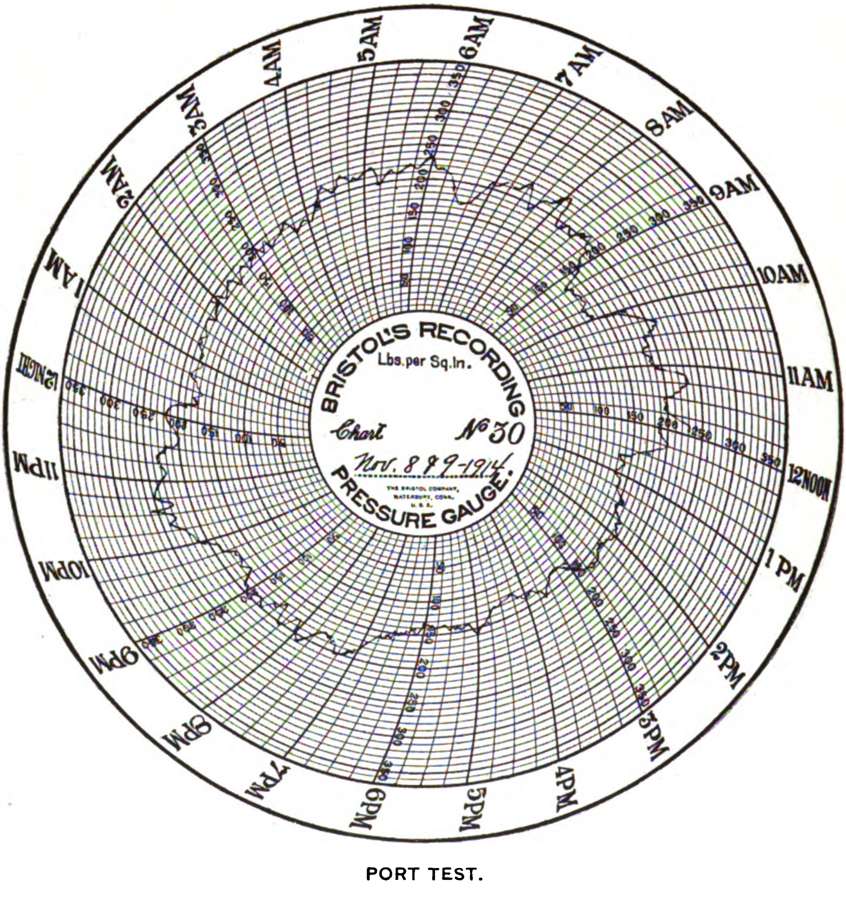
PLATE 11.

Pressure-Gauge Chart No. 2, U. S. S. "Maryland."



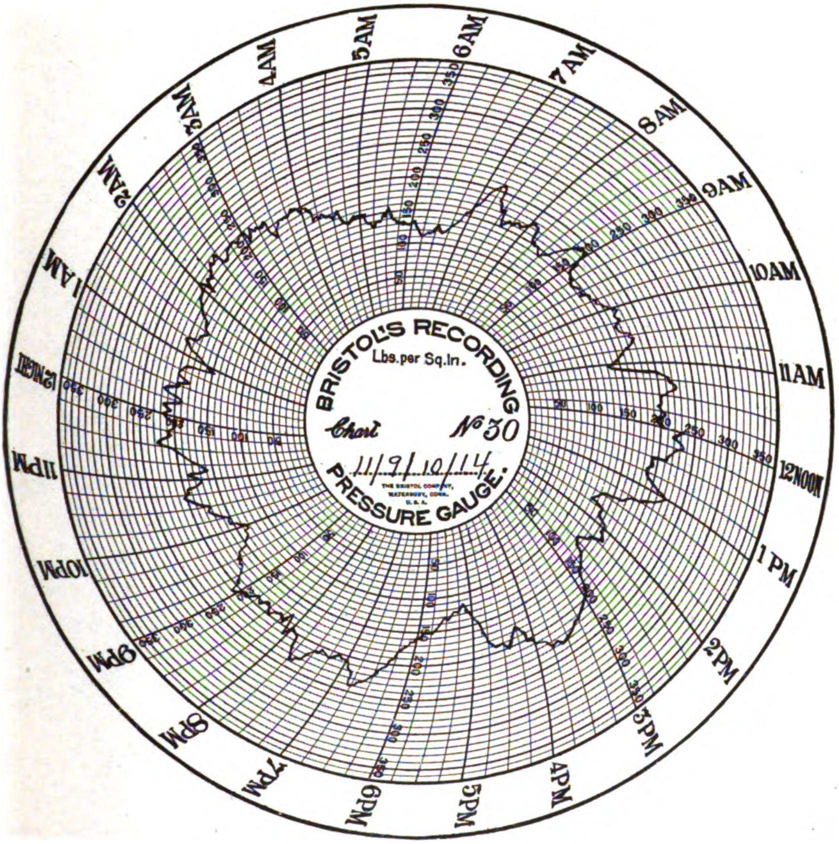
PORT TEST.

Pressure-Gauge Chart No. 3, U. S. S. "Maryland."



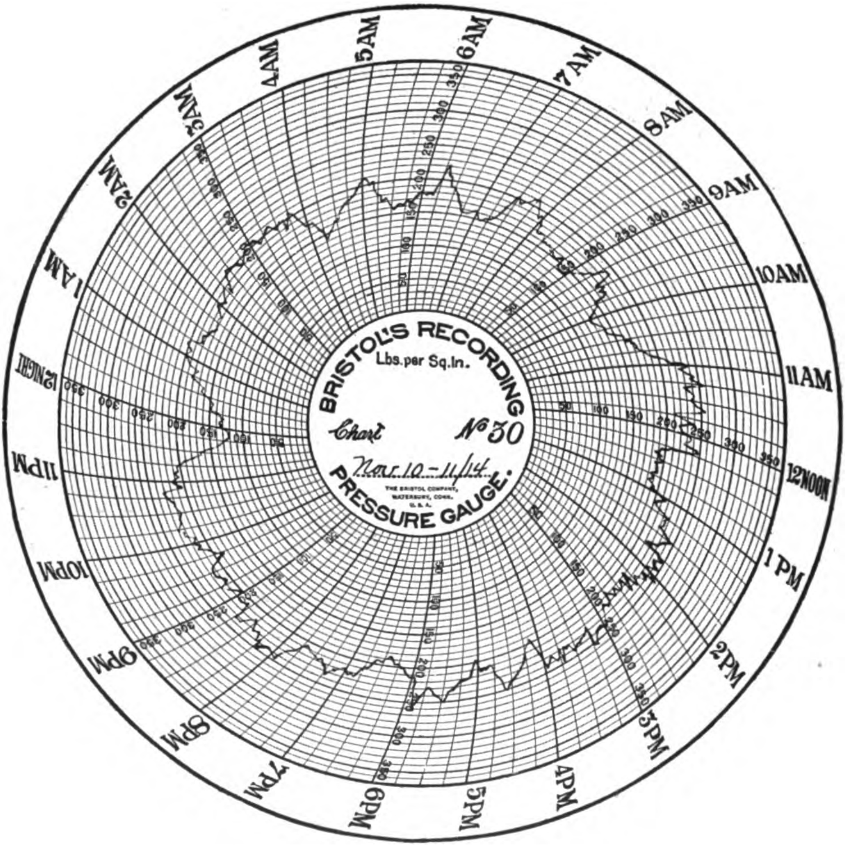
PORT TEST.

Pressure-Gauge Chart No. 4, U. S. S. "Maryland."



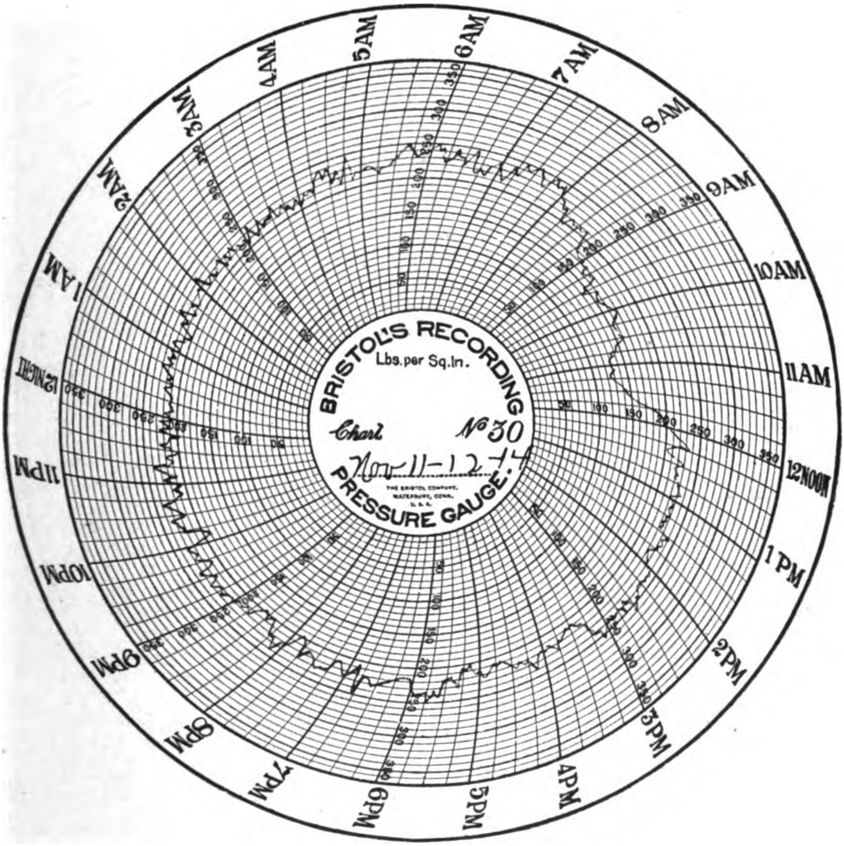
PORT TEST.

Pressure-Gauge Chart No. 5, U. S. S. "Maryland."



PORT TEST.

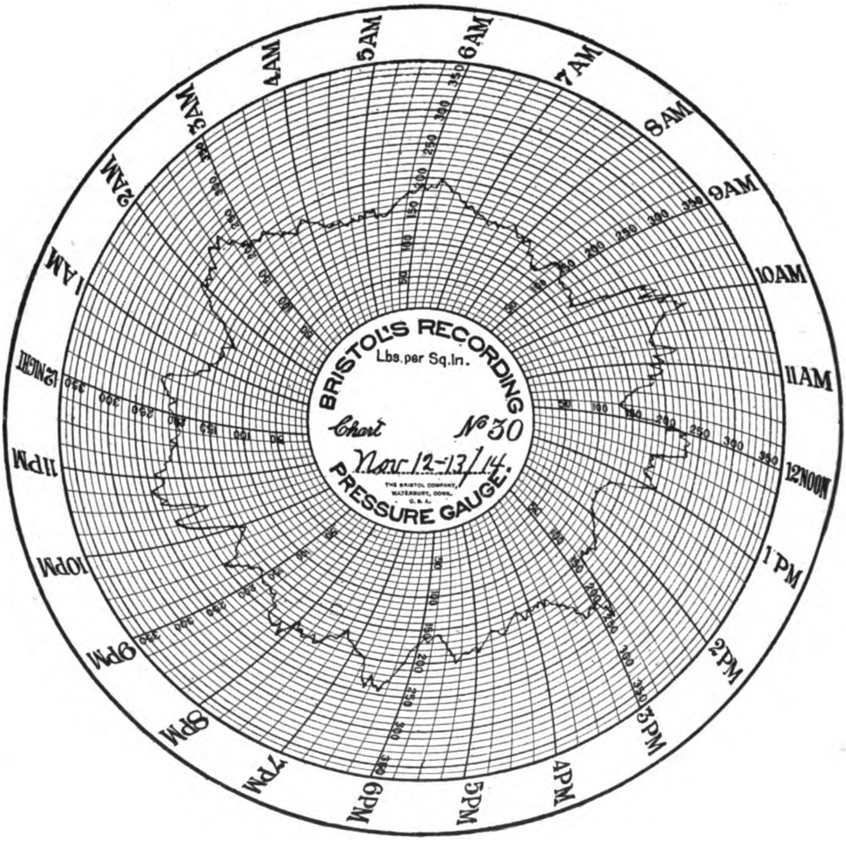
Pressure-Gauge Chart No. 6, U. S. S. "Maryland."



PORT TEST.

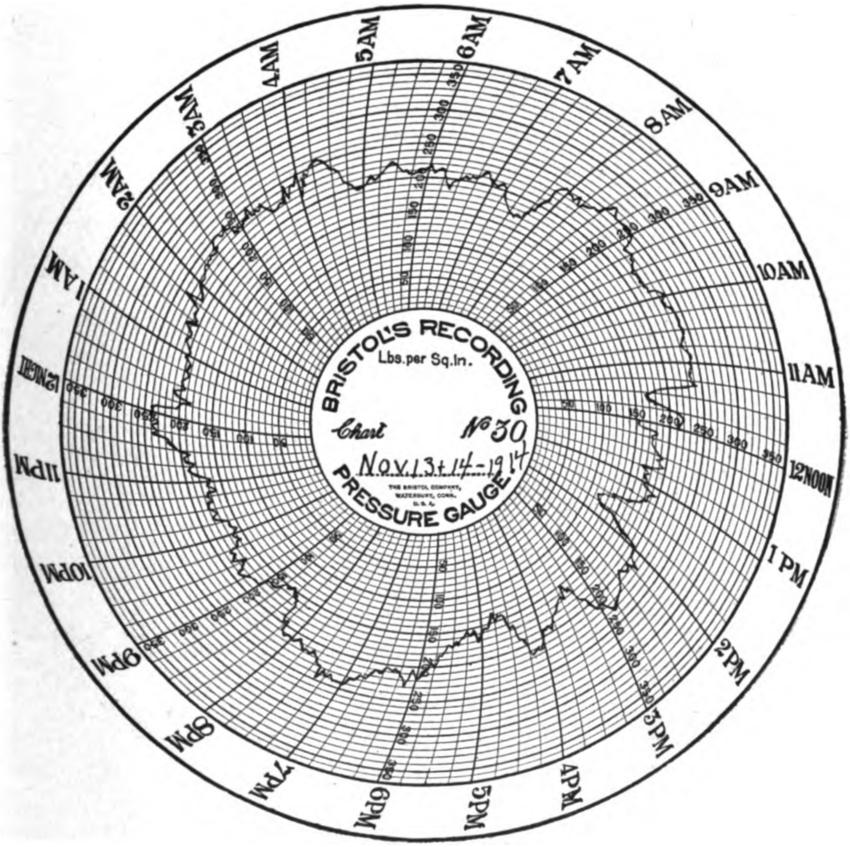
PLATE 16.

Pressure-Gauge Chart No. 7, U. S. S. "Maryland."



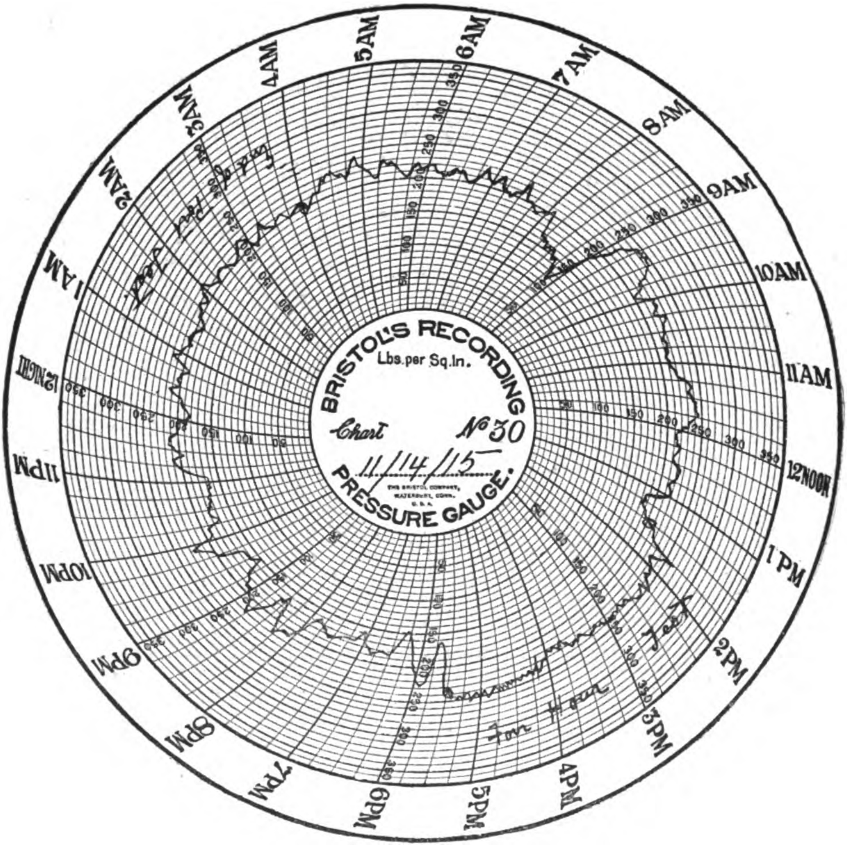
PORT TEST.

Pressure-Gauge Chart No. 8, U. S. S. "Maryland."



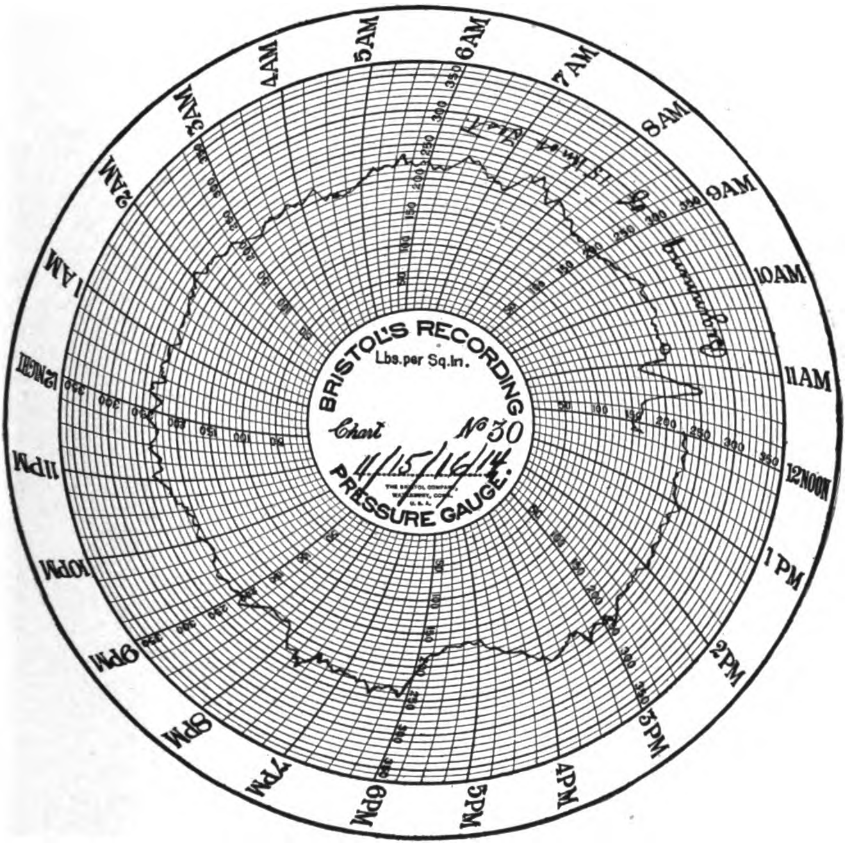
PORT TEST.

Pressure-Gauge Chart No. 9, U. S. S. "Maryland."



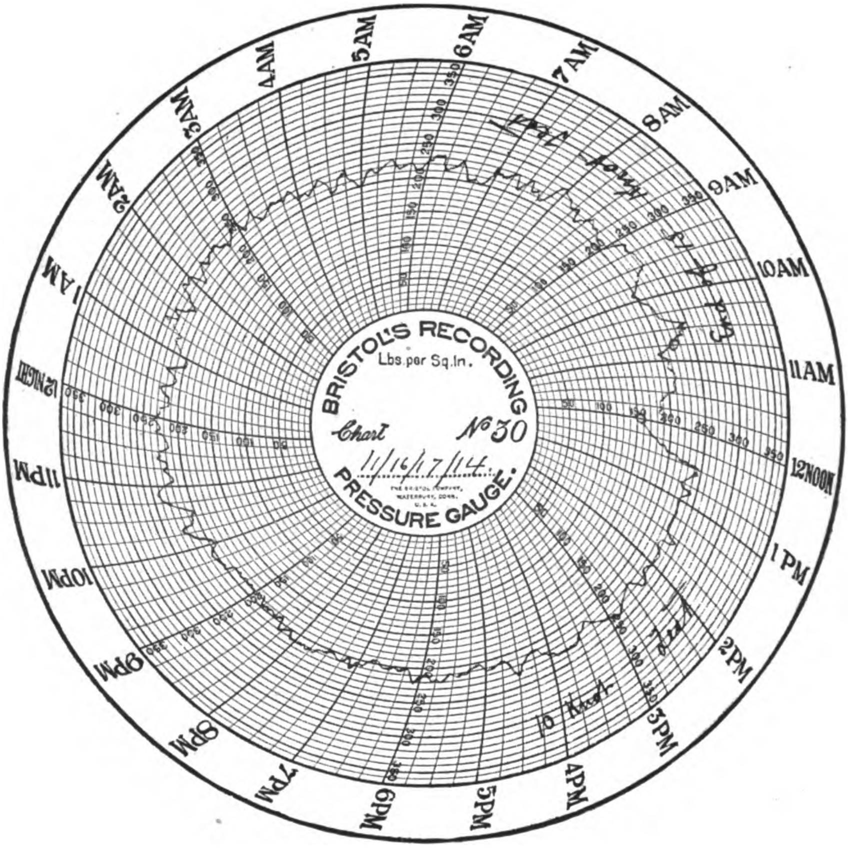
PORT AND 20-KNOT TEST.

Pressure-Gauge Chart No. 10, U. S. S. "Maryland."



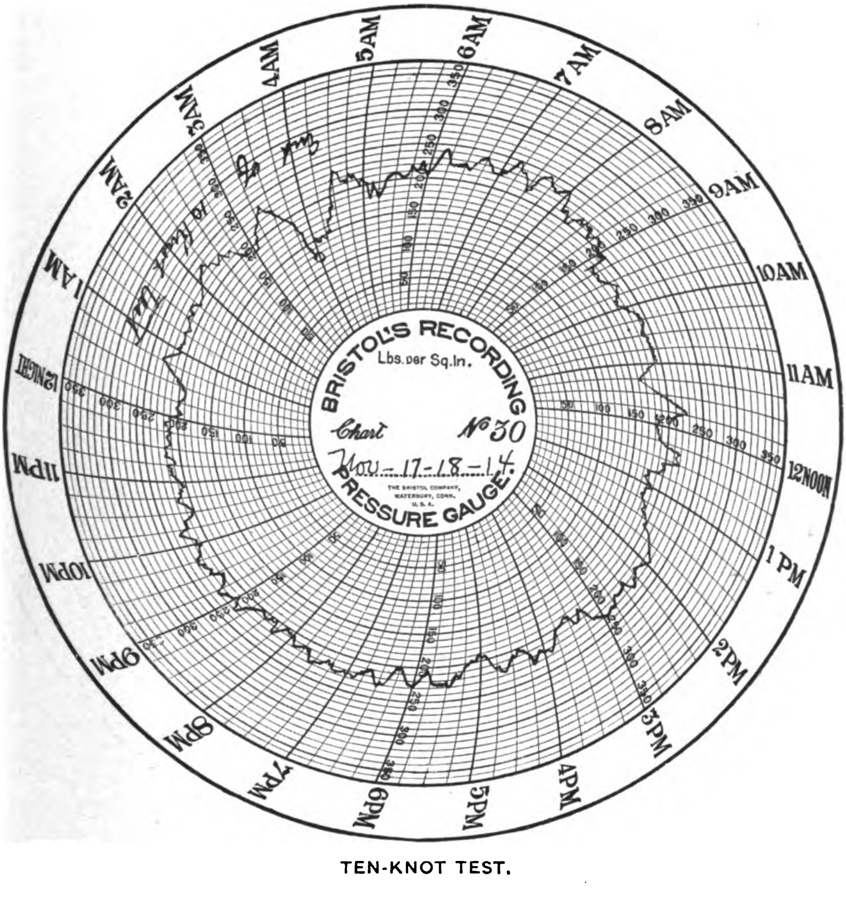
FIFTEEN-KNOT TEST.

Pressure-Gauge Chart No. 11, U. S. S. "Maryland."



TEN-KNOT TEST.

Pressure-Gauge Chart No. 12, U. S. S. "Maryland."



TEN-KNOT TEST.

the effect on grate-bar casings and uptakes, smoke, and (if possible) the appearance of the coal on the grate.

17. The report should include under each test a table showing comparative results of the test with Matanuska, Bering River, and Poçahontas coal, data for the last two being taken from the report of the tests in 1913.

18. Attention is invited to the importance of the test of this coal and to the necessity of care in taking and preparing the data. The Matanuska coal represents a considerable outlay of money. Moreover, the report of the suitability or nonsuitability of this coal for naval use will have important bearing on the source of supply of coal for the Navy, and possibly will affect the interests of many citizens of the country. It is, therefore, requested that all operations of the vessel be made secondary during these trials in order that the tests may receive the undivided attention of the board.

GRIFFIN.

U. S. S. "MARYLAND,"
Navy Yard, Mare Island, Cal., October, 23, 1914.

To: Capt. Philip Andrews.
Subject: Board for preparing and arranging data for coal tests.

1. In accordance with paragraph 6, Bureau of Steam Engineering's letter 137067–623–15–F, of October 16, 1914, the following officers will constitute a board to prepare and arrange all data of the coal test of Matanuska coal to be made on board this vessel in accordance with instructions contained in the aforementioned letter:

Capt. Philip Andrews, senior member.
Lieut. M. S. Davis, member.
Lieut. H. E. Kays, member.
Ensign W. O. Henry, recorder.

PHILIP ANDREWS.

TEST 460.

UNITED STATES NAVAL ACADEMY,
ENGINEERING EXPERIMENT STATION,
Annapolis, Md., February 18, 1915.

From: De Baufre, William L., mechanical engineer.
To: Head of naval engineering experiment station.
Subject: Report on evaporative test of Matanuska (Alaska) coal and comparison with Pocahontas coal.
References: (*a*) Bureau of Steam Engineering letter No. 135357–623–15–F, September 26, 1914.
(*b*) Engineering experiment station first indorsement No. 268–ES–14–B, February 4, 1914.
Inclosures: (A) Photograph of screens.
(B) Bureau of Mines analyses of the several coal sizes.
(C) Photograph of float and sink test machine.
(D) Drawing No. 656, float and sink test results.
(E) Bureau of Mines analyses of coal, ashes, and clinkers.
(F) Drawing No. 657, run curves, Matanuska coal.
(G) Drawing No. 658, run curves, Pocahontas coal.

1. The test described in this report was conducted in accordance with reference (*a*) wherein it was directed that an evaporative test of the Matanuska coal be conducted under the same conditions as the former tests with Pocahontas and Bering River coals; and that the

results of this test be compared with those of the Pocahontas coal test. The results of the test of Pocahontas coal quoted in this report are taken from report on test 362, "Comparative evaporative test of Pocahontas and Bering River (Alaska) coal," forwarded to the Bureau of Steam Engineering under reference (*b*). There was also stated in reference (*a*), "If it is considered feasible, the bureau desires that the test be conducted with the Matanuska coal as received; and if any picking, screening, or washing operations be considered desirable, it is requested that the bureau be informed."

2. The car containing the Matanuska coal arrived at the Naval Academy grounds September 10, 1914, from Puget Sound Navy Yard. The lot consisted of about 25 tons contained in burlap bags. It was transported across the Severn River to the engineering experiment station and stored in the boiler room, where it was under cover.

OBJECT OF TEST.

3. In accordance with the above directions, it was decided first to screen a sample of the Matanuska coal and then to conduct float and sink tests with the several sizes in order to obtain the necessary data for indicating the desirability of any picking, screening, or washing operations. Should any of these operations be deemed advisable, and the Bureau of Steam Engineering accept recommendations to that effect, a 24-hour evaporative test would be made with the cleaned coal. Otherwise, the evaporative test would be made with the coal as received. Finally, the results of this test were to be compared with those for Pocahontas coal as obtained in test 362, conducted under the same conditions.

CONDUCT AND RESULTS OF SCREENING TEST.

4. A sample lot, consisting of 3,325 pounds of the Matanuska coal, was screened by means of the mechanically agitated set of screens shown in the photograph, inclosure (A), set up for this purpose. The actual dimensions of the openings corresponding to the several nominal sizes of the screens are given in Table 1.

TABLE 1.—*Screen sizes.*

Nominal size. 1	Center distance of wires. 2	Diameter of wires. 3	Net width of openings. 4
	Inches.	*Inches.*	*Inches.*
1-inch mesh	1.000	0.128	0.872
½-inch mesh	.516	.045	.471
4-mesh	.255	.028	.227
10-mesh	.100	.040	.060

5. The proportions of the several sizes of coal were determined by weighing the cans into which the coal was directed by chutes as indicated in inclosure (A). The weight of the coal before screening checked the sum of the weights of the several sizes. Representative and generous portions of each size were reduced by quartering to approximately 3-pound samples, which were forwarded to the Pittsburgh laboratory of the Bureau of Mines for chemical analysis and heating value determinations. The resulting information is given in the Bureau of Mines reports, inclosures (B-1) to (B-5).

6. The proportions of the several sizes of Matanuska coal and of the ash content in each as determined by screening and analysis are summarized in Table 2. For comparison, the same data from test 362 for Pocahontas coal are given in Table 3. The Matanuska coal was much more broken up than the Pocahontas coal; for example, only 1.44 per cent of the former passed over the ⅞-inch mesh screen, while 33.03 per cent of the latter passed over; also, 36.51 per cent of the former passed through the 10-mesh screen while only 11.56 per cent of the latter passed through; the intermediate sizes showed the same relative differences of less magnitude.

7. The percentages of ash in the several sizes of the Pocahontas coal differ but slightly, the larger sizes containing somewhat higher percentages than the smaller sizes. In the Matanuska coal the percentages differ greatly, varying from 6.96 per cent in the fine coal through 10-mesh to 22.67 per cent in the lumps over ⅞-inch mesh, based on moisture free coal. Owing to the relatively small proportion of the larger sizes, however, the ash that is contained in them does not constitute a large proportion of the ash in the dry coal before screening; thus, while the percentage of ash in the lump size over ⅞-inch mesh is 22.67, it constitutes but 0.33 out of a total of 10.10 per cent in the original dry coal before screening. The percentages of ash based on each size of the Matanuska coal show that it would be unnecessary to discard any of the slack coal in attempting to improve the quality, for in the slack the ash percentage is moderately low. On the other hand, discarding the larger sizes or reducing their ash percentages by washing would not considerably reduce the total ash content based on the total sample before screening for the reason that this ash constitutes but a small proportion of the total.

8. The absence of large lumps precluded the possibility of making a friability test of the Matanuska coal in comparison with the data obtained previously for Pocahontas coal by dropping large lumps and noting the sizes and number of the resulting fragments. The relative proportions of the several sizes in Tables 2 and 3 certainly indicate, however, the Matanuska coal to be much more friable than Pocahontas coal. The small percentage of moisture in the Matanuska coal would seem to indicate that the small proportion of lumps was not due to disintegration from alternate freezing and thawing of water in the climate of Alaska or during shipment.

TABLE 2.—*Ash in Matanuska coal.*

[Naval engineering experiment station. Test 460.]

Size of coal.	Amounts as screened.		Moisture.	Amounts, moisture free.		Ash in coal as screened.		Ash in coal, moisture free.	
	Weight.	Proportion.		Weight.	Proportion.	Based on each size.	Based on total sample.	Based on each size.	Based on total sample.
1	2	3	4	5	6	7	8	9	10
	Pounds.	*Per ct.*	*Per ct.*	*Pounds.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Over ⅞-inch mesh	48	1.44	1.05	47.5	1.44	22.43	0.32	22.67	0.33
Over ⅜-inch mesh	285	8.57	.90	282.4	8.57	21.97	1.88	22.17	1.90
Over 4-mesh	650	19.55	.85	644.5	19.55	13.17	2.58	13.28	2.60
Over 10-mesh	1,128	33.93	.81	1,118.9	33.94	7.98	2.71	8.05	2.73
Through 10-mesh	1,214	36.51	.87	1,203.4	36.50	6.90	2.52	6.96	2.54
Total	3,325	100.00	....	3,296.7	100.00	....	10.01	....	10.10

TABLE 3.—*Ash in Pocahontas coal.*

[Naval engineering experiment station. Test 362.]

Size of coal.	Amounts as screened.		Moisture.	Amounts, moisture free.		Ash in coal as screened.		Ash in coal, moisture free.	
	Weight.	Proportion.		Weight.	Proportion.	Based on each size.	Based on total sample.	Based on each size.	Based on total sample.
1	2	3	4	5	6	7	8	9	10
	Pounds.	*Per ct.*	*Per ct.*	*Pounds.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Over ¾-inch mesh	1,659¼	33.03	1.64	1,633	33.06	6.65	2.20	6.76	2.24
Over ½-inch mesh	560¾	11.15	1.38	552	11.17	6.64	.74	6.73	.75
Over 4-mesh	664	13.21	1.56	654	13.24	5.43	.72	5.52	.73
Over 10-mesh	1,560	31.05	1.69	1,534	31.05	4.35	1.35	4.42	1.37
Through 10-mesh	581	11.56	2.46	567	11.48	4.92	.57	5.04	.58
Total	5,025	100.00	....	4,940	100.00	....	5.58	....	5.67

9. Additional data for the comparison of Matanuska and Pocahontas coal are given in Tables 4 and 5. The ultimate and proximate analyses of the several sizes of moisture and ash free Matanuska coal show slight differences in the constiution of the combustible matter, the larger sizes containing slightly more nitrogen and oxygen and somewhat higher volatile matter than the smaller sizes. The sulphur content is lower in Matanuska coal than in Pocahontas coal.

10. The heating value of the larger sizes of the Matanuska coal as received is, as would be expected, lower than that of the fine coal on account of the larger percentages of ash in the larger sizes. The heating value based on moisture and ash free coal is also slightly less in the larger than in the smaller sizes, due undoubtedly to the slightly different constitution of the combustible matter. Basing the heating value of the coal as received before screening upon the values given in Tables 4 and 5, and the proportions of the several sizes in Tables 2 and 3, we obtain for Matanuska coal 13,750 British thermal units per pound as compared with 14,587 British thermal units per pound for Pocahontas coal. While the fusing temperatures of the ash from Matanuska coal are on the whole less than those of Pocahontas coal, the conclusions that might be drawn therefrom are rather indefinite.

TABLE 4.—*Analyses of Matanuska coal.*

[Naval Engineering Experiment Station. Test 460.]

Size of coal.	Ultimate analysis of coal, moisture and ash free, per cent.					Proximate analysis, moisture and ash free, per cent.		Heating value, British thermal units per pound.		Fusing temperature of ash, degrees. Fahrenheit.
	Hydrogen.	Carbon.	Nitrogen.	Oxygen.	Sulphur.	Volatile matter.	Fixed carbon.	As received.	Moisture and ash free.	
1	2	3	4	5	6	7	8	9	10	11
Over ¾-inch mesh	5.03	86.41	1.89	6.09	0.58	26.41	73.59	11,511	15,044	2,143
Over ½-inch mesh	5.04	86.35	1.72	6.39	.50	25.81	74.19	11,605	15,048	2,291
Over 4-mesh	4.97	87.83	1.60	5.10	.50	23.85	76.15	13,187	15,336	2,241
Over 10-mesh	5.00	88.66	1.61	4.21	.52	23.02	76.98	14,112	15,473	2,475
Through 10-mesh	5.01	87.98	1.65	4.83	.53	22.78	77.22	14,308	15,514	2,278

TABLE 5.—*Analyses of Pocahontas coal (test 362).*

[Naval Engineering Experiment Station. Test 460.]

Size of coal.	Ultimate analysis of coal, moisture and ash free, per cent.					Proximate analysis, moisture and ash free, per cent.		Heating value, British thermal unit per pound.		Fusing temperature of ash, degrees. Fahrenheit.
	Hydrogen.	Carbon.	Nitrogen.	Oxygen.	Sulphur.	Volatile matter.	Fixed carbon.	As received.	Moisture and ash free.	
1	2	3	4	5	6	7	8	9	10	11
Over ⅞-inch mesh...	4.73	90.78	1.21	2.64	0.64	21.55	78.45	14,423	15,728	2,498
Over ½-inch mesh...	4.79	90.44	1.27	2.80	.70	22.37	77.63	14,445	15,703	2,395
Over 4-mesh........	4.76	90.48	1.28	2.80	.68	22.37	77.63	14,638	15,736	2,507
Over 10-mesh.......	4.85	90.19	1.30	2.93	.73	22.72	77.28	14,807	15,757	2,320
Through 10-mesh....	4.90	89.88	1.31	3.00	.91	22.81	77.19	14,546	15,705	2,253

CONDUCT AND RESULTS OF FLOAT AND SINK TEST.

11. To determine the extent to which the ash content of the Matanuska coal might be reduced by washing, the relative proportions of "float" and "sink" of the several sizes were found in zinc chloride solutions of several densities; the ash content of samples of the "float" and "sink" then being determined. To facilitate this work a float and sink test machine was built as shown in the photograph, inclosure (C).

12. In inclosure (C) the carriage A supports two sieves B and C in a framework which may be carefully raised and lowered by means of a rack and a pinion on the axle to which the crank D is attached. The photograph shows these sieves lowered for weighing the contents on the two platform scales E and F. A cylinder G is seen supported above sieve C by a second carriage H, which has a transverse movement in carriage A. In operation the first position of carriage A is over tank K, containing zinc chloride solution of the desired density. The sieves are then in their highest position and the cylinder G rests in sieve B. A weighed amount of coal is placed in sieve B. The sieves and cylinder are then very carefully lowered into the solution. A portion of the coal sinks with the sieve B and the remainder floats within the cylinder G. Both portions are stirred to insure separation of the parts lighter and heavier than the solution. With the sieves immersed, the cylinder G just clears the top edge of sieve B, and this cylinder G is now slowly moved from above sieve B to above sieve C. Both sieves are then carefully raised by means of crank D, the "sink" remaining in sieve B and the "float" being caught in sieve C. The excess solution drains back into tank K through the 60-mesh screening in the sieves. Carriage A is moved over tank L and the portion of the float adhering to the walls of cylinder G rinsed down with fresh water into sieve C, and both sieves also rinsed with fresh water. The excess water is allowed to drain off. The carriage is then moved over the two scales and the sieves lowered to the position shown in the photograph for weighing the "float" and the "sink." The coal is not dried before weighing,

because the moisture that adheres to the coal is practically in the same ratio as the dry coal. The platform scale beams are graduated to 0.02-pound divisions.

13. A given weight of coal of one of the sizes as screened was first separated into the "float" and "sink" in a solution of 1.35 specific gravity. The "sink" was then separated into portions lighter and heavier than 1.45 specific gravity in a solution of this density. The "sink" in 1.45 specific gravity solution was similarly separated in a solution of 1.55 specific gravity, and the resultant "sink" finally separated into a solution of 1.65 specific gravity. Thus, the given weight of coal was divided into five portions: One less than 1.35 specific gravity, one between 1.35 and 1.45, one between 1.45 and 1.55, one between 1.55 and 1.65, and one heavier than 1.65. The ash percentage in each portion was determined. As 60-mesh screening was used in the sieves in the float and sink test machine, the fine coal was screened through a 60-mesh screen and only that which passed over was tested. The portion over 60-mesh constituted about 80 per cent of that through 10-mesh.

14. The results of the float and sink test, conducted as described above, are given in Table 6. By calculations which become evident upon inspection of this table there are derived the proportion of ash and the proportion of dry combustible in coal having a specific gravity less than each of the corresponding tabulated values. These derived quantities are plotted to obtain the curves in inclosure (D), drawing No. 656. Any point on one of these curves shows for that size the condition of the coal after removing the portion heavier than the specific gravity corresponding to the point considered. Thus, for coal over ⅞-inch mesh the point A corresponds to a specific gravity of 1.45; the ordinate shows that 66.2 per cent of the original weight of dry coal now remains as dry combustible, and the abscissa shows that 9.1 per cent of the original weight remains as ash; the inclined parallel lines indicate that there is left 75.3 per cent of the original weight, and the radiating lines indicate 12.1 per cent of ash now present. As we follow along this curve from the highest point representing the original condition of the dry raw coal containing 21.73 per cent ash and 78.27 per cent combustible, we see that separation of this size according to specific gravity will reduce the ash percentage, but that this reduction can not be carried to less than about 9 per cent of ash, where the curve becomes a radial line corresponding to this percentage. Any attempt to reduce the ash further would simply result in discarding combustible at the same rate as ash.

TABLE 6.—*Float and sink test results.*

[Naval engineering experiment station. Test 460.]

Size of coal. 1	Specific gravity of solution. 2	Weight of dry coal between densities tabulated. 3	Proportion of dry coal between densities tabulated. 4	Proportion of dry coal below density tabulated. 5	Ash in dry coal between densities tabulated. 6	Proportion of ash between densities tabulated. 7	Proportion of ash below density tabulated. 8	Proportion of dry combustible between densities tabulated. 9	Proportion of dry combustible below density tabulated. 10
		Pounds.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Over ¾-inch mesh	....	7.02	30.82	30.82	8.98	2.77	2.77	28.05	28.05
	1.35	7.03	30.86	61.68	8.64	2.67	5.44	28.19	56.24
	1.45	3.05	13.39	75.07	27.08	3.63	9.07	9.76	66.00
	1.55	1.30	5.70	80.77	37.56	2.14	11.21	3.56	69.56
	1.65	4.38	19.23	100.00	54.72	10.52	21.73	8.71	78.27
Total	....	22.78	100.00	....	....	21.73	....	78.27	....
Over ¼-inch mesh	....	12.51	44.97	44.97	4.86	2.19	2.19	42.78	42.78
	1.35	4.58	16.46	61.43	8.04	1.32	3.51	15.14	57.92
	1.45	2.25	8.09	69.52	27.26	2.21	5.72	5.88	63.80
	1.55	2.70	9.70	79.22	37.16	3.60	9.32	6.10	69.90
	1.65	5.78	20.78	100.00	55.80	11.60	20.92	9.18	79.08
Total	....	27.82	100.00	....	....	20.92	....	79.08	....
Over 4-inch mesh	....	25.01	74.61	74.61	4.70	3.51	3.51	71.10	71.10
	1.35	3.00	8.95	83.56	10.82	.97	4.48	7.98	79.08
	1.45	1.58	4.72	88.28	29.56	1.40	5.88	3.32	82.40
	1.55	.59	1.76	90.04	37.16	.65	6.53	1.11	83.51
	1.65	3.34	9.96	100.00	54.34	5.41	11.94	4.55	88.06
Total	....	33.52	100.00	....	....	11.94	....	88.06	....
Over 10-inch mesh	....	25.19	85.68	85.68	3.80	3.26	3.26	82.42	82.42
	1.35	2.21	7.52	93.20	8.17	.61	3.87	6.91	89.33
	1.45	.77	2.62	95.82	33.20	.87	4.74	1.75	91.08
	1.55	.29	.98	96.80	36.64	.36	5.10	.62	91.70
	1.65	.94	3.20	100.00	57.98	1.86	6.96	1.34	93.04
Total	....	29.40	100.00	....	....	6.96	....	93.04	....
Over 60-inch mesh	....	23.48	85.63	85.63	4.12	3.53	3.53	82.10	82.10
	1.35	2.51	9.16	94.79	10.24	.94	4.47	8.22	90.32
	1.45	.40	1.46	96.25	26.70	.39	4.86	1.07	91.39
	1.55	.19	.69	96.94	35.26	.24	5.10	.45	91.84
	1.65	.84	3.06	100.00	57.02	1.74	6.84	1.32	93.16
Total	....	27.42	100.00	....	....	6.84	....	93.16	....

15. In Table 7 are given the results that might be attained by reducing the ash content by washing, provided this operation separated the portions of different specific gravities as efficiently as the float and sink test machine. In the commercial operation, however, where the lighter portion is separated from the denser by agitating the coal in water, the same reduction of ash content as indicated in Table 7 would be obtained only with a greater loss of combustible. Referring to Table 7, the first group of tabulated values shows the dry raw coal before washing to contain 90.71 per cent of combustible and 9.29 per cent of ash. The values for the combustible in column 4 and the ash in column 6 in the second group of figures correspond to the highest point on the straight part of each curve on inclosure (D), and therefore to the minimum obtainable ash percentage with the least rejection of combustible given in column 8. The totals indicate that the minimum possible ash content in the washed coal is 4.25 per cent. To so reduce the ash percentage there must be rejected 90.71 − 79.53 = 11.18 pounds of combustible and 9.29 − 3.49 = 5.80

pounds of ash in each 100 pounds of dry raw coal; that is, the dry washed coal would be 79.53 + 3.49 = 83.02 per cent of the dry raw coal.

16. A reduction to the above extent, however, is considered impracticable, and such an attempt would result in a much larger loss than indicated. The fine coal contains a relatively small percentage of ash, and, as it does not lend itself as readily to the washing operation as the larger sizes, we will assume no reduction in ash content to be attempted with it. We will also assume the reduction of ash in the larger sizes to be carried to 7, 8, and 10 per cent only, as indicated in the third group of values in Table 7. The ash content of the mixed washed sizes would then be 7.06 per cent, and the dry washed coal would be 88.13 + 6.66 = 94.79 per cent of the dry raw coal.

TABLE 7.—*Ash reduction by washing.*

[Naval engineering experiment station. Test 460.]

Condition of coal. 1	Size of coal. 2	Proportion of each size. 3	Combustible from inclosure (D). 4	Combustible based on dry raw coal. 5	Ash from inclosure (D). 6	Ash based on dry raw coal. 7	Ash in each size. 8	Ash proportion in dry washed coal. 9
		Per ct.	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Dry raw coal	Over ¾-inch	1.44	78.27	1.13	21.73	0.31	....	....
	Over ½-inch	8.57	79.08	6.78	20.92	1.79	....	....
	Over 4-mesh	19.55	88.06	17.22	11.94	2.38	....	....
	Over 10-mesh	33.94	93.04	31.58	6.96	2.36	....	....
	Through 10-mesh	36.50	93.16	34.00	6.84	2.50	....	....
Total	....	100.00	....	90.71	....	9.29	....	....
Reduced to minimum ash content	Over ¾-inch	1.44	56.00	.81	5.30	.08	8.65	0.12
	Over ½-inch	8.57	51.00	4.37	2.60	.22	4.85	.42
	Over 4-mesh	19.55	74.00	14.47	3.70	.72	4.76	.93
	Over 10-mesh	33.94	85.00	28.85	3.50	1.19	3.95	1.34
	Through 10-mesh	36.50	85.00	31.03	3.50	1.28	3.95	1.44
Total	....	100.00	....	79.53	....	3.49	....	4.25
Reduced to moderate ash content	Over ¾-inch	1.44	62.40	.90	6.90	.10	10.00	.14
	Over ½-inch	8.57	63.20	5.42	5.50	.47	8.00	.69
	Over 4-mesh	19.55	83.00	16.23	6.30	1.23	7.00	1.37
	Over 10-mesh	33.94	93.04	31.58	6.96	2.36	6.96	2.36
	Through 10-mesh	36.50	93.16	34.00	6.84	2.50	6.84	2.50
Total	....	100.00	....	88.13	....	6.66	....	7.06

17. Instead of resorting to any washing operations at all, the ash might be reduced by entirely discarding the larger sizes containing the high ash percentages. Thus the effect of discarding all coal of a size larger than that which would pass through the ½-inch mesh screen is shown in Table 8.

TABLE 8.—*Ash reduction by screening.*

Size of coal. 1	Combustible and ash based on dry raw coal. 2	Combustible based on dry raw coal. 3	Ash based on dry raw coal. 4	Ash based on screened coal. 5
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
Over ¾-inch	....	[1]	....	....
Over ½-inch	....	[1]	....	....
Over 4-mesh	19.55	17.22	2.33	....
Over 10-mesh	33.94	31.58	2.36	....
Through 10-mesh	36.50	34.00	2.50	....
Total	89.99	82.80	7.19	8.00

[1] Discarded.

The values in columns 2, 3, and 4 are taken from columns 3, 5, and 7, respectively, Table 7. By discarding all coal over a ½-inch mesh screen the ash percentage is reduced from 9.29 to 8, the screened coal amounting to 89.99 per cent of the raw coal. The possible results of screening are based upon the data in Table 7 rather than upon that in Table 2, because the ash percentage in the former corresponds more closely with the ash content determined from the samples taken during the evaporative test afterwards made. See item 53, Table 9.

18. No hand picking of the Matanuska coal was attempted, although some reduction of the ash content in the larger sizes might be secured in this way. It is believed that such reduction would not amount to more than one-half to three-quarters of 1 per cent.

19. Thus the above data indicates that comparatively small reductions only in ash content can be obtained by picking, screening, or washing operations upon the Matanuska coal as received at this station. Before the calculations were entirely completed upon which these conclusions were based, this station was informed verbally by telephone December 4, 1914, that, as a result of the favorable reports received from the U. S. S. *Maryland*, where test of the same coal was underway, the bureau desired the evaporative test made with the coal as received. Accordingly, a 24-hour evaporative test was made December 8–9, 1914.

GENERAL ARRANGEMENTS FOR EVAPORATIVE TEST.

20. The evaporative power of the coal was determined by burning it under a water-tube boiler, the amounts of coal fired in the furnace and of water fed to the boiler being measured together with the pressures, temperatures, etc., required for calculating a heat balance. The various auxiliaries about the plant consumed about one-eighth of the steam generated, the other seven-eighths being led direct to a surface condenser. The auxiliaries exhausted through a closed feed-water heater to surface condensers. The condensed steam from all condensers and the necessary make-up feed water was weighed into a concrete hot well in which the suction pipe of the feed pump extended nearly to the bottom.

21. *Boiler.*—The boiler is of the Babcock & Wilcox marine type built in 1906 and designed for a working pressure of 500 pounds per square inch gauge. During this test the steam pressure was maintained at 300 pounds per square inch gauge, the pressure at which the boiler is usually operated. The principal dimensions of the boiler, furnace, and stack are:

Nominal capacity, 216.1 horsepower.

BOILER.

Length of steam drum, 9 feet 11½ inches.
Outside diameter of steam drum, 31¾ inches.
Number of horizontal tubes connecting steam drum and rear headers, 16.
Outside diameter of connecting tubes, 4 inches.
Thickness of connecting tubes, No. 6 B. W. G.
Exposed length of connecting tubes, 7 feet 6 inches.
Number of nipples connecting steam drum and front headers, 16.
Outside diameter of nipples, 4 inches.
Thickness of nipples, No. 6 B. W. G.
Exposed length of nipples, 14½ inches.

Number of tubes connecting front and rear headers, 403.
Inclination of tubes, about 15°.
Outside diameter of tubes, 2 inches.
Thickness of tubes, No. 8 B. W. G.
Exposed length of tubes, 9 feet.
Number of tubes connecting water legs, 4.
Outside diameter of tubes, 2 inches.
Thickness of tubes, No. 8 B. W. G.
Exposed length of tubes, 8 feet 6 inches.
Number of front headers, 16.
Size of front headers, 5½ inches by 6½ inches by 3 feet 11 inches.
Number of rear headers, 16.
Size of rear headers, 5½ inches by 6½ inches by 4 feet 4 inches.
Number of front boxes, 1.
Size of front box, 5 inches by 7 inches by 8 feet 1 inch.
Number of side boxes, 8.
Size of side boxes, 6 inches by 7 inches by 8 feet 8 inches.

WATER-HEATING SURFACE.

	Square feet.
Steam drum, one-fourth shell	18
Tubes connecting steam drum to rear headers, entire exposed surface	125
Nipples connecting steam drum to front headers, entire exposed surface	20
Tubes connecting front and rear drums, entire exposed surface	1,899
Tubes connecting water legs, entire exposed surface	18
Front headers, one side	22
Rear headers, one side	24
Front box, exposed surface	8
Side boxes, exposed surface	27
Total water-heating surface	2,161

SUPERHEATING SURFACE.

Heating surface per nominal horsepower, 10 square feet.
Water in boiler, weighed as drained from bottom blowpipe at 120° F., 7,250 pounds.
Water space (calculated from weight of water), 117 cubic feet.
Steam space (calculated from dimensions of drum), 24 cubic feet.

FURNACE.

Kind of grate, cast-iron single and double bars.
Length of grate, 7 feet.
Width of grate, 8 feet 4 inches.
Area of grate, 58⅓ square feet.
Ratio of heating surface to grate surface, 37.
Dimensions of air spaces, ⅜ inch by 32 inches.
Combined area of air spaces, 24.5 square feet.
Ratio of air space to grate area, 0.42.
Height of lowest tubes above front end of grate, 25 inches.
Height of lowest tubes above rear end of grate, 41 inches.
Volume of furnace, 188 cubic feet.
Ratio of furnace volume to grate area, 3.22.
Depth of ash pit below grate surface, 24 inches.
Draft area into ash pit, 9.3 square feet.
Draft area through first pass between tubes, 12.8 square feet.
Draft area through second pass between tubes, 11.1 square feet.
Draft area through third pass between tubes, 9.1 square feet.
Draft area at smoke breeching, 25.2 square feet.

STACK.

Construction: Steel plate, unlined, supported above boiler and held by guy wires.
Height of top above grate, 68 feet.
Internal diameter, 40 inches.
Draft area, 8.72 square feet.

22. *Weighing and sampling coal.*—The coal was wheeled from the pile to the boiler room in barrows holding about 250 pounds, and each barrow load weighed on platform scales to the nearest one-half pound. The empty barrow was weighed each time after dumping the coal on the boiler-room floor. At the end of every hour, the coal remaining on the floor was weighed back to obtain the hourly totals of coal fired. A sample of coal was taken from each barrow load before weighing, and deposited in cans kept in a cool place and carefully covered. At the conclusion of the run, the samples so collected were thoroughly mixed and quartered to obtain a representative sample for chemical examination.

23. *Weighing and sampling ashes and clinkers.*—The ash pit was cleaned at the end of every hour and the ashes weighed in barrows holding about 150 pounds, the dead weight of the empty barrow being obtained before each filling. From each barrow load a sample of ashes was selected after weighing and deposited in a closed can. The clinkers hauled from the grate at each cleaning were likewise weighed and sampled, the samples being kept in receptacles separate from those containing the ashes withdrawn from the ash pit. After the fires had died out at the conclusion of a run, the clinker that had accumulated on the back of the grate during the run was also weighed and sampled. These samples of ashes from ash pit, of clinkers from grate during run, and of clinkers from back of grate after run, were separately quartered and reduced to representative samples for chemical examination. A metered quantity of fresh water was sprinkled into the ash pit after removing the ashes at the end of each hour, but the ashes were not wetted just before weighing. Fresh water was also used to wet the clinkers hauled from the grate at the cleaning periods.

24. *Weighing feed water.*—The feed-water weighing tanks were mounted above and discharged into a concrete hot well in which the suction pipe of the boiler feed pump extended nearly to the bottom. The condensed steam from the surface condenser to which the boiler bleeder line was attached and that from the various auxiliaries, was weighed to the nearest one-half pound in two tanks holding about 2,000 pounds of water each. The make-up feed water was weighed in a third tank holding about 400 pounds. The first two tanks were dumped whenever they became full. The third tank was filled and discharged into the hot well as often as necessary to maintain the normal water level indicated on a float gauge graduated in sixteenths of an inch, 1 inch corresponding to 410 pounds of water. The water level in the hot well was noted at the end of each hour and the weighings so made as to obtain the hourly totals of water fed. The water level in the boiler was recorded on a differential gauge connected to the top and bottom of the gauge glass fitting.

25. *Pressure measurements.*—The barometric pressure was measured by means of a mercury column to the nearest one-hundredth inch, the temperature of the column being recorded in order to reduce the reading to 32° F. The steam pressure was noted to the nearest one-half pound per square inch by means of a pressure gauge graduated by 1 pound per square inch divisions. This gauge was attached to the top of the boiler drum, a recording pressure gauge and the operating pressure gauge being attached at the same point. Indicating draft gauges of the inclined glass tube type and graduated in

one-hundredth inch divisions were connected to the base of the stack and to the back of the furnace; recording draft gauges were attached to the base of the stack, the back of the furnace, and the back of the ash pit.

26. *Temperature measurements.*—Mercury-in-glass thermometers graduated to single degrees Fahrenheit were employed to obtain the temperatures of the external air, fireroom, feed water, and steam. A thermometer well located close to the boiler stop valve held the steam temperature thermometer to which was attached an auxiliary thermometer for obtaining the temperature of the exposed mercury column. The bulb of a recording thermometer was installed in the feed pipe near the well containing the mercury-in-glass thermometer, both being located near the boiler. A nitrogen-filled mercury-in-glass thermometer graduated in 5-degree Fahrenheit intervals, projected into the flue gases at the base of the stack, the bulb being protected by a box with baffles so arranged as to allow the passage of the flue gases but to prevent direct radiation of heat from the thermometer bulb to the comparatively cool surfaces of boiler tubes and stack. An iron-constantan thermocouple was also inserted in the flue gases at the base of the stack; and a platinum-rhodium couple was inserted in the back of the furnace to obtain the temperature of the gases of combustion just before passing between the water tubes.

27. *Weather and humidity.*—The direction from which the wind blew was shown by a wind vane mounted on the roof of the station. A voltmeter within the building indicated the angular displacement of the vane from the north pointing position. At times, the wind velocity was insufficient to move the vane and the wind direction was then determined from the drift of the smoke. The wind velocity was recorded on a chart, the pen arm being actuated by an anemometer on the roof. To obtain the humidity of the air, readings were taken of a dew point hygrometer and of a wet bulb thermometer, air circulation past the latter being secured by an electric fan.

28. *Steam quality.*—Steam for the throttling calorimeter was drawn through a one-half inch sampling tube closed at the end and containing a number of one-eighth inch holes. This sampling pipe was inserted in a vertical portion of the steam pipe about 3 feet from the boiler drum. The pressure within the calorimeter was measured by a bourdon tube gauge and the temperature by a mercury-in-glass thermometer to which a steam thermometer was attached.

29. *Flue-gas sampling.*—Samples of the flue gases were taken from the first pass of the gases across the tubes and from the base of the stack. The former samples were obtained through a one-half inch wrought-iron pipe capped at one end and containing 10 one-sixteenth inch holes along the lower side. This pipe projected through the lowest peephole in the aft side cleaning door and extended nearly to the far side of the boiler. Samples from the base of the stack were drawn through a spider having six legs of one-half inch wrought-iron pipe capped at the outer ends and containing a narrow slit along the under side of each. In both cases flow of gas was maintained by steam ejectors, the gas bubbling through wash bottles. Samples from each stream of gas were caught by the displacement of mercury in 250 cubic centimeter glass holders of the form recommended by the Bureau of Mines.

30. *Smoke data.*—The density of the smoke was observed by comparison with a Ringelmann's smoke chart obtained from the Bureau of Mines.

CONDUCT OF EVAPORATIVE TEST.

31. *Condition of boiler.*—Before the test the boiler was carefully cleaned—the mud being washed out of the tubes and the soot blown off their external surfaces. No leaks were apparent under a water pressure of 450 pounds per square inch gauge. During the run the boiler apparently remained tight, although slight leaks started at several of the nipples on the water legs after the conclusion of the run while the boiler was cooling.

32. *Starting and stopping the run.*—The run with Matanuska coal was begun at 2 p. m. on December 8, 1914, the fire having been started about 10.40 a. m. with wood and slowly built up with the coal under test. For about one hour before the test regular running conditions obtained. At 1.55 p. m. firing was stopped and the fires carefully leveled, their height and condition being noted at 2 p. m., when the water levels in the hot well and boiler were also noted, the ash pit cleaned of ashes, and the floor of coal. The run was continued for 24 hours, until 2 p. m. on December 9. About 1 hour before the end of the run the fire within the two doors which had not recently been cleaned were then cleaned of clinker and the whole fire then carefully worked to bring it as nearly as possible to the same condition at 2 p. m. as at the beginning of the run 24 hours previous.

33. *Management of fires.*—The furnace having three doors, signals of one bell, two bells, and three bells, consecutively, were arranged to indicate the door to be coaled, and a firing interval of five minutes between the times of coaling any one door was selected. The coal was shoveled from the floor and spread over the fuel bed. After coaling any one door the fire in the door next to be coaled was leveled. The slice bar was used only to clear the grates when the ash pit became dark, no breaking up of fires being allowed. The thickness of the fires was varied according to the percentage of CO_2 in the flue gases, the attempt being made to maintain about 12 per cent of CO_2, which was considered the most economical value. The fire in each door was cleaned once in 12 hours, the times of cleaning being 2.10, 6.10, and 10.10, both a. m. and p. m. The coal burned freely but did not swell as much before burning as Pocahontas and other bituminous coal. The clinker was not excessive and came away freely from the grate bars. As each shovelful was fired, a considerable amount of the fine coal was apparently carried away by the draft. To reduce this loss, about 1 per cent of water was sprinkled over each barrow load of coal during the last 12 hours of the run.

34. *Constant conditions.*—In addition to the quantities regulated, as explained above, the following conditions were maintained as nearly constant as possible: The draft at the base of the stack was maintained at 0.750 inch water by adjusting the steam jet in the stack, a recording draft gauge showing how well the regulation was accomplished. The steam pressure was kept at 300 pounds per square inch gauge by adjusting the throttle valve in the bleeder line to the condenser, a recording pressure gauge giving a permanent record of this pressure. The feed-water temperature was maintained

at about 180° F., as shown on a recording thermometer, by adjusting the steam pressure in the closed heater. The water level in the boiler was kept near the middle of the gauge glass by adjustment of the feed valve, and this quantity also was recorded on a recording differential pressure gauge. The water level in the hot well was maintained within reasonable limits by the addition of make-up feed water.

35. *Observations.*—General observations of temperatures, pressures, etc., were taken at 15-minute intervals, as indicated by an electric horn automatically operated by means of contacts on a clock. Weights of feed water were taken as necessary, coal and ashes were weighed each hour, and clinkers were weighed at the time of cleaning fires. Flue gas samples from both first pass and base of stack were taken each half hour, the filling of the holder being extended for a period of from 20 to 25 minutes. Smoke observations were made at 15-second intervals for 20 minutes during each two hours of daylight, the times being selected to obtain representative data.

36. *Calibration of instruments.*—All pressure gauges, thermometers, and scales were carefully calibrated.

CHEMICAL EXAMINATION.

37. The samples of coal fired, of ashes from ash pit, of clinkers from grate during run, and of clinkers from back of grate after run, were all forwarded to the Bureau of Mines, Pittsburgh, Pa., for examination. The results of the ultimate and proximate analyses and of the heating value determinations are attached as inclosure (E), 1 to 16, inclusive.

DATA OBSERVED AND DEDUCED RESULTS OF EVAPORATIVE TEST.

38. The data obtained as above described, corrected for calibration and other errors, are given in Table 9 for both the Matanuska and the Pocahontas coals, together with the economic results, efficiencies, and heat balances, calculated as outlined in Appendix I. The following points are noteworthy in comparing the two coals:

39. The Pocahontas coal as fired was comparatively dry, containing but 2.37 per cent of moisture, item 35. The Matanuska coal, however, was even drier, containing only 1.16 per cent of moisture. As it was apparent that a considerable portion of the fine coal was carried away by the draft when each shovelful was fired, it was decided to augment the moisture in the Matanuska coal during the last 12 hours of the 24-hour run until it should about equal that in the Pocahontas coal. The amount so added is given in items 118 and 119, but it is questionable whether this was sufficient to appreciably lessen the loss of fine coal.

40. The amount of dry soot from the tubes and baffles after the run, item 43, is an approximate measure of the relative losses of fine coal up the stack. This item shows 231 pounds for the Matanuska coal as compared with 35 pounds for Pocahontas coal. The same result may be arrived at by comparing the amount of ash in the ashes from the ash pit and the clinkers from the grate with the ash in the coal burned. The ash in the ashes is equal to the product of items 37 and 62, the ash in the clinkers to the products of items

38 and 65 and of items 39 and 68, and the ash in the coal burned to the product of items 36 and 53. These products are tabluated below:

	Pocahontas.	Matanuska.
Ash in ashes from ash pit	714	1,847
Ash in clinkers from grate	647	711
Ash in clinkers from bridge wall	170	50
Ash accounted for	1,531	2,608
Ash in coal	1,975	3,593
Ash deposited on tubes and baffles and carried up stack	444	985

It may be noted that these quantities of ash unaccounted for in the ashes and clinkers are in about the same relative proportion as the unaccounted for losses in the heat balances, items 138 and 149.

41. With the same draft at the base of the stack, three-quarters inch of water, item 11, there was burned somewhat more coal per square foot of grate surface with Matanuska coal than with Pocahontas coal, the quantities being 27.19 pounds and 24.93 pounds, respectively, item 78. The draft through the fire bed, item 10, was 0.312 inch of water with the Matanuska coal as compared with 0.325 inch with the Pocahontas coal, although the excess air with the former coal was 48.98 per cent and with the latter coal 30.14 per cent, item 127. The approximate thickness of the fuel bed during the run was 6½ inches with Matanuska coal and 7½ inches with Pocahontas coal, item 106.

42. The amount of clinker removed from the grate during the run with Matanuska coal was 860 pounds as compared with 739 pounds with Pocahontas coal, item 38. The dry ashes removed from the ash pit, item 37, amounted to 3,034 pounds for Matanuska coal and 1,780 pounds for Pocahontas coal. In spite of the greater proportion of fine coal in the former, the combustible matter that fell through the grate constituted a smaller percentage of the ashes, item 62, in the case of Matanuska coal than in the case of Pocahontas coal. The slice bar was used much more frequently with the former than with the latter coal to keep the grates clear and the ash pit bright. This would have been unnecessary, and the ratio of ashes to clinkers would have been different had a shorter cleaning period than 12 hours been adopted for each door.

43. The temperature at the base of the stack, item 20, was higher with Pocahontas coal than with Matanuska coal, corresponding to the less percentage of excess air, item 127. Had the fuel bed been carried somewhat thicker with the Matanuska coal, the excess air would have been reduced and the stack temperatures more nearly equalized. The percentage of CO in the gases at the base of the stack, 0.36 per cent, item 115, indicates that the thicker fuel bed could have been carried without causing excessive loss by incomplete combustion. In fact, the percentages of CO_2 and CO, items 113 and 115, would indicate that the percentage of CO_2 may be carried higher with Matanuska coal than with Pocahontas coal without unduly increasing the CO loss.

44. The smoke density, item 107, was less with Matanuska coal than with Pocahontas coal. But, as greater dilution with excess

air occurred in the former case, the smoke-producing qualities of the two coals are not considered greatly different.

45. Although the heating value, item 72, of the Matanuska coal was less than that of the Pocahontas coal, and the loss up the stack was greater, the evaporation of water, item 92, with Matanuska coal, was very nearly equal to that with Pocahontas coal by reason of the larger amount of the former coal burned per hour, item 76. By carrying a slightly heavier fuel bed, the total evaporation with Matanuska coal would have fully equaled that with Pocahontas coal, and the capacities, items 97 and 98, would have been equal.

46. The economic results, items 99 to 103, were less with Matanuska coal than with Pocahontas coal; and the efficiencies, items 104 and 105, were about 3 per cent less. While some improvement would result from carrying a thicker fuel bed with Matanuska coal than was used during this run, the improvement would equal about 1 per cent only—the loss due to heat in excess dry air, items 131 and 142, might be reduced 2 per cent, but the loss due to the formation of carbon monoxide, items 130 and 141, would probably be increased 1 per cent. Only by reducing the amount of fuel carried up the stack as indicated in the relatively high unaccounted for loss, items 138 and 149, would the economic results and efficiencies be made equal to those obtained with the Pocahontas coal.

47. Table 9 follows:

TABLE 9.—*Results of evaporative tests.*

General.		
1. Run number	1	2
2. Designation	Pocahontas.	Matanuska.
3. Date	Dec. 16–17, 1913	Dec. 8–9, 1914.
4. Duration, hours	24	24
Average pressures.		
5. Barometer, inches of mercury	29.99	29.93
6. Barometer, pounds per square inch	14.74	14.70
7. Steam, pounds per square inch gauge	300.2	294.9
8. Steam, pounds per square inch, absolute	314.9	309.6
9. Draft, ashpit, inches of water	0	0
10. Draft, furnace, inches of water	.325	.312
11. Draft, base of stack, inches of water	.750	.751
Average temperatures.		
12. External air, degrees Fahrenheit	45.8	40.5
13. Fireroom, degrees Fahrenheit	62.5	84.4
14. Steam by thermometer, degrees Fahrenheit	421.0	421.0
15. Steam from pressure, degrees Fahrenheit	421.9	420.4
16. Feed water entering boiler, degrees Fahrenheit	183.9	184.9
17. Gases leaving furnace by thermocouple, degrees Fahrenheit	1,835	1,672
18. Gases at base of stack by thermocouple, degrees Fahrenheit	744	729
19. Gases at base of stack by thermometer, degrees Fahrenheit	764	720
20. Gases at base of stack, average, degrees Fahrenheit	754	725
Weather and humidity.		
21. State of weather	Clear.	Cloudy.
22. Wind direction	S. to SSW.	E. to NE.
23. Wind velocity, miles per hour	2.3	4.7
24. Wet bulb thermometer reading, degrees Fahrenheit	51.9	61.6
25. Corresponding moisture per pound of dry air, pound	.005744	.006398
26. Dew point by hygrometer, degrees Fahrenheit	41.2	43.3
27. Relative humidity by hygrometer, per cent	45.6	23.7
28. Corresponding moisture per cubic foot of dry air, pound	.0004104	.0004264
29. Dry air per cubic foot, pound	.07553	.07229
30. Corresponding moisture per pound of dry air, pound	.005434	.005898
31. Average value of moisture per pound of dry air, pound	.005589	.006148

Tabld 9.—*Results of evaporative tests*—Continued.

Total fuel.		
32. Kind of coal	Pocahontas No. 1.	Matanuska.
33. Size of coal	Run of mine.	Run of mine(?)
34. Coal as fired, pounds	35,740	38,504
35. Moisture by samples, per cent	2.37	1.16
36. Dry coal, fired, pounds	34,893	38,057
37. Dry ashes from ashpit, pounds	1,780	3,034
38. Dry clinker from grate, pounds	739	860
39. Dry clinker from bridge wall, pounds	187	51
40. Total dry ashes and clinker, pounds	2,706	3,945
41. Combustible consumed, pounds	32,187	34,112
42. Dry ashes and clinker in dry coal, per cent	7.76	10.40
43. Dry soot from tubes and baffles, pounds	35	231
Proximate analysis of coal as received.		
44. Moisture, per cent	2.37	1.16
45. Volatile matter, per cent	21.01	21.75
46. Fixed carbon, per cent	71.10	67.76
47. Ash, per cent	5.52	9.33
Ultimate analysis of dry coal.		
48. Hydrogen, per cent	4.48	4.60
49. Carbon, per cent	84.95	79.93
50. Nitrogen, per cent	1.18	1.51
51. Oxogen, per cent	2.94	4.04
52. Sulphur, per cent	.79	.48
53. Ash, per cent	5.66	9.44
54. Moisture in coal as received, per cent of dry coal	2.43	1.17
Ultimate analysis of dry coal, ash free.		
55. Hydrogen, per cent	4.75	5.08
56. Carbon, per cent	90.04	88.26
57. Nitrogen, per cent	1.25	1.67
58. Oxygen, per cent	3.12	4.46
59. Sulphur, per cent	.84	.55
Proximate analysis of dry ashes from ash pit.		
60. Volatile matter, per cent	5.04	7.04
61. Fixed carbon, per cent	54.86	32.08
62. Ash, per cent	40.10	60.88
Proximate analysis of dry clinker from grate.		
63. Volatile matter, per cent	1.17	1.51
64. Fixed carbon, per cent	11.34	15.76
65. Ash, per cent	87.49	82.73
Proximate analysis of dry clinker from bridge wall.		
66. Volatile matter, per cent	.97	.40
67. Fixed carbon, per cent	7.93	1.29
68. Ash, per cent	91.10	98.31
Proximate analysis of dry soot from tubes and baffles.		
69. Volatile matter, per cent	9.03	5.82
70. Fixed carbon, per cent	37.44	49.15
71. Ash, per cent	53.53	45.03
Calorific value.		
72. Dry coal by calorimeter, British thermal units, per pound	14,786	14,008
73. Dry coal, ash free, by calorimeter, British thermal units, per pound	15,673	15,467
74. Dry coal, by analysis, British thermal units, per pound	14,937	14,184
75. Dry coal, ash free, by analysis, British thermal units, per pound	15,833	15,663
Fuel per hour.		
76. Dry coal consumed, pounds	1,454	1,586
77. Combustible consumed, pounds	1,341	1,421
78. Dry coal per square foot of grate surface, pounds	24.93	27.19
79. Combustible per square foot of heating surface, pounds	.6205	.6576
Steam quality.		
80. Throttling calorimeter temperature, degrees Fahrenheit	323.1	322.2
81. Throttling calorimeter pressure, pounds per square inch gage	11.50	17.4
82. Heat in calorimeter steam above 32° F., British thermal units, per pound	1,199.8	1,198.1
83. Quality, per cent dry	99.41	99.20

TABLE 9.—*Results of evaporative tests*—Continued.

Steam quality—Continued.		
84. Moisture in steam, per cent	.59	.80
85. Heat in wet steam above feed temperature, British thermal units, per pound	1,048.0	1,045.3
86. Heat in dry saturated steam above feed temperature, British thermal units, per pound	1,052.7	1,051.7
87. Factor of correction for quality of steam	.9955	.9939
88. Factor of evaporation	1.0848	1.0838
Total water.		
89. Water fed to boiler, pounds	324,355	319,951
90. Equivalent evaporation of dry saturated steam, pounds	322,895	317,999
91. Equivalent evaporation from and at 212° F., pounds	350,276	344,647
Water per hour.		
92. Equivalent evaporation of dry saturated steam, pounds	13,454	13,250
93. Equivalent evaporation from and at 212° F., pounds	14,595	14,360
94. Equivalent evaporation from and at 212° F., per square foot of water heating surface, pounds	6.7	5 6.65
Capacity.		
95. Rated capacity in steam from and at 212° F., pound per hour	7,455	7,455
96. Rated capacity in boiler horsepower	216.1	216.1
97. Boiler horsepower developed	423.0	416.2
98. Proportion of rated capacity developed, per cent	195.7	192.6
Economic results.		
99. Water fed per pound of coal fired, pounds	9.08	8.31
100. Equivalent dry saturated steam per pound dry coal, pounds	9.25	8.36
101. Equivalent evaporation from and at 212° F. per pound coal fired, pounds	9.80	8.95
102. Equivalent evaporation from and at 212° F. per pound dry coal, pounds	10.04	9.06
103. Equivalent evaporation from and at 212° F. per pound combustible consumed, pounds	10.89	10.10
Efficiency.		
104. Boiler, furnace, and grate, per cent	65.89	62.76
105. Boiler and furnace, per cent	67.43	63.37
106. Average thickness of fire, inches	7.50	6.50
107. Smoke density by Ringelmann's smoke chart, per cent	59.4	41.62
Analysis of dry flue gases by volume.		
First pass:		
108. Carbon dioxide, per cent	12.80	12.83
109. Oxygen, per cent	5.76	6.07
110. Carbon monoxide, per cent	.47	.31
111. Hydrogen and hydrocarbons, per cent	.00	.00
112. Nitrogen, per cent	80.97	80.79
Base of stack:		
113. Carbon dioxide, per cent	12.74	11.90
114. Oxygen, per cent	5.45	6.54
115. Carbon monoxide, per cent	1.12	.36
116. Hydrogen and hydrocarbons, per cent	.00	.00
117. Nitrogen, per cent	80.69	81.20
Water added to coal.		
118. Total added to coal, pounds	0	215.0
119. Added per pound of dry coal, pound	0	.006
Water put in ash pit.		
120. Total put in ash pit, pounds	1,612	1,520
121. Put in ash pit per pound of dry coal, pound	.0462	.0399
122. Accounted for in ashes by analysis of samples, per pound of dry coal, pound	.0005	.0005
123. Evaporated and in flue gases per pound of dry coal, pound	.0457	.0394
Air supply.		
124. Theoretical quantity required per pound of dry coal, pounds	11.263	10.669
125. Quantity supplied per pound of dry coal, pounds	14.658	15.895
126. Excess air supplied per pound of dry coal, pounds	3.395	5.226
127. Excess air supplied, per cent	30.14	48.98

TABLE 9.—*Results of evaporative tests*—Continued.

HEAT BALANCE.

	Pocahontas.		Matanuska.	
	British thermal units.	Per cent.	British thermal units.	Per cent.
Based on 1 pound dry coal.				
128. Heat absorbed by boiler	9,743	65.89	8,792	62.76
129. Combustible in ashes and clinkers	490	3.31	511	3.65
130. Formation of carbon monoxide	680	4.60	235	1.68
131. Heat in excess dry air	572	3.87	816	5.83
132. Heat in dry products of combustion	2,008	13.58	1,747	12.47
133. Evaporation of moisture formed from hydrogen in coal	554	3.75	554	3.95
134. Evaporation of moisture in coal	33	.22	16	.11
135. Evaporation of water added to coal	....	....	8	.06
136. Heating moisture in air	26	.18	28	.20
137. Evaporation of water in ash pit	63	.43	53	.38
138. Unaccounted for, including unconsumed hydrogen and hydrocarbons, radiation, etc	617	4.17	1,248	8.91
139. Heating value of dry coal	14,786	100.00	14,008	100.00
Based on 1 pound combustible consumed.				
140. Heat absorbed by boiler	10,568	67.43	9,801	63.37
141. Formation of carbon monoxide	737	4.70	262	1.69
142. Heat in excess dry air	620	3.96	911	5.89
143. Heat in dry products of combustion	2,177	13.89	1,950	12.61
144. Evaporation of moisture formed from hydrogen in coal	601	3.83	618	4.00
145. Evaporation of moisture in coal	36	.23	18	.12
146. Evaporation of water added to coal	0	0.0	9	.06
147. Heating moisture in air	28	.18	31	.20
148. Evaporation of water in ash pit	68	.43	59	.38
149. Unaccounted for, including unconsumed hydrogen and hydrocarbons, radiation, etc	838	5.35	1,808	11.69
150. Heating value of dry combustible	15,673	100.00	15,467	100.00

CONDITIONS DURING RUNS.

48. To carry the comparisons of the performances of the two coals further than indicated in the average values given in Table 9, the principal data taken during each run are plotted on drawings Nos. 657 and 658, inclosures (F) and (G). These curves show how nearly uniform the conditions were maintained during the runs. They show how a variation in the amount of coal fired per hour, with the consequent variation in the thickness of the fuel bed, affects the draft in the furnace, the proportions of CO_2 and of CO, and the stack temperature, the draft at the base of the stack being maintained constant.

49. It may be noted that the percentage of CO generally increases with the percentage of CO_2, but that there is no exact relation between the two quantities. If the whole fuel bed is not maintained in uniform condition, the green coal on one part of the bed may be evolving CO while excess air is passing through another part. This nonuniform condition will obtain just before and after cleaning and even throughout the run to varying extents as the doors were coaled one at a time.

50. The hourly ratios of water fed to boiler and coal fired in furnace show comparatively large fluctuations because no correction has been applied for the difference in the amount of coal on the grate at the beginning and the end of each hour. The ratios of the total water fed to boiler and total coal fired in furnace vary less as the run proceeds, 24 hours duration being sufficient but also necessary to obtain a reliable value.

SUMMARY AND CONCLUSIONS.

51. The preliminary screening and float and sink tests with Matanuska coal indicate that only slight reduction in ash percentage can be accomplished by any picking, screening, or washing operations from the original value of 9.3 per cent based on dry coal. By very careful hand picking the ash content might be reduced to somewhat less than 9 per cent; by screening and discarding all coal passing over one-half-inch mesh, to about 8 per cent, the screened coal amounting to about 90 per cent of the raw coal; by washing the sizes over 4-mesh, to about 7 per cent, the washed coal constituting about 94 per cent of the raw coal. The maximum possible theoretical reduction of ash by separation according to specific gravity would reduce the ash to 4.25 per cent, but this would be impracticable in a commercial washery. While the sizes over one-half-inch mesh contain over 20 per cent of ash, they constitute but 10 per cent of the coal, so that a large reduction in their ash percentages results in but a slight reduction in the ash percentage of the coal as received.

52. However, an ash percentage of 9.3 per cent is not very excessive, and the ash content did not give trouble during the evaporative test made with the coal as received. By keeping the ash pit bright, most of this ash fell through the grate with a less percentage of unburnt coal than in the evaporative test with Pocahontas coal. The ash removed as clinker came away freely from the grate bars.

53. The fineness of most of the Matanuska coal resulted in a comparatively large loss by the draft carrying the fine coal up the stack. This loss was noticed during the early part of the evaporative test and about 1 per cent of water added to the coal during the last 12 hours of the run. The quantity was hardly sufficient to appreciably reduce the loss, however, which was found about twice as great as with Pocahontas coal by the weights of soot removed from the tubes and baffles after the runs, by the amounts of ash unaccounted for in the ashes and clinkers, and by the unaccounted for losses in the heat balances.

54. The equivalent evaporations from and at 212° F. per pound of coal were as follows:

	Pocahontas.	Matanuska.
Coal as received	9.80	8.95
Moisture-free coal	10.04	9.06
Moisture and ash free coal	10.89	10.10

The lower values for Matanuska coal are attributed mainly to the above-mentioned loss of fine coal up the stack. They would have been slightly higher, however, had the fires been carried somewhat heavier with the Matanuska coal, thus reducing the excess air loss. The greater differences in the first two than in the third pair of values are due, of course, to the larger percentage of ash in the Matanuska coal.

55. The evaporation of water per hour with Matanuska coal was almost as great as with Pocahontas coal by reason of the larger amount of coal burned per square foot of grate surface per hour. Thus:

	Pocahontas.	Matanuska.
Equivalent evaporation from and at 212° F. per hour	14,595	14,360
Dry coal per square foot grate surface	24.93	27.19

RECOMMENDATION.

56. Had the Bureau of Steam Engineering delayed informing this station of the desire to conduct the evaporative test of the Matanuska coal in the condition as received, a recommendation would have been made to conduct the test without any picking, screening, or washing operations.

57. In view of its performance during the evaporative test, Matanuska coal is considered adapted for use with the standard Navy grate under naval boilers.

Wm. L. de Baufre.

APPENDIX I.—*Source of items in Table 9.*

Item.

1. For reference.
2. For reference.
3. From data taken each run.
4. From data taken each run.
5. From data taken during each run corrected to 32° F.
6. Item 5 multiplied by 0.4912.
7. From data taken during each run corrected for calibration error and for water column.
8. Item 7 plus item 6.
9. From data taken during each run corrected for air column.
10. From data taken during each run corrected for air column.
11. From data taken during each run corrected for air column.
12. From data taken during each run corrected for calibration error.
13. From data taken during each run corrected for calibration error.
14. From data taken during each run corrected for calibration error and exposed stem.
15. From Marks and Davis Steam Tables corresponding to item 8.
16. From data taken during each run corrected for calibration error.
17. From data taken during each run corrected for calibration error and for cold junction temperature of thermocouple.
18. From data taken during each run corrected for calibration error and for cold junction temperature of thermocouple.
19. From data taken during each run corrected for calibration error.
20. One-half the sum of items 18 and 19.
21. By observation during each run.
22. By observation during each run.
23. From data recorded during each run.
24. From data taken during each run corrected for calibration error, and for radiation and air velocity by subtracting one per cent of the difference between the wet bulb temperature as read and the fire room temperature, item 13.
25. From formula:

$$w=\frac{r_2w_2-c_{pa}(t_1-t_2)}{r_2+c_{ps}(t_1-t_2)};$$

in which w=pounds of moisture present per pound of dry air;

t_1=temperature of fire room, item 13;

t_2=temperature of wet bulb, item 24;

c_{pa}=mean specific heat in British thermal units per pound of air per 1° F. change in temperature between t_2 and t_1, as given by the formula

$$c_{pa}=0.24112+0.0000045\,(t_1+t_2);$$

c_{ps}=mean specific heat in British thermal units per pound of superheated steam per 1° F. change in temperature between t_1 and t_2, as given by the formula

$$c_{ps}=0.4423+0.00009\,(t_1+t_2);$$

r_2=latent heat of steam in British thermal units per pound from Marks and Davis Steam Tables corresponding to true wet bulb temperature t_2;

$$w_2=d_2\times0.7539\times\frac{t_2+459.6}{b-p_2}$$

pounds of water vapor in 1 pound of dry air at true wet bulb temperature t_2,

$$0.7539=12.387\times\frac{29.92}{491.6}$$

being the "proportional" volume in cubic feet of 1 pound of dry air at 1° F. absolute temperature and under 1 inch mercury pressure, d_2 being the density of dry saturated steam from Marks and Davis Steam Tables corresponding to temperature t_2, $t_2+459.6$ being the absolute temperature corresponding to t_2, *b* being the barometer pressure in inches of mercury, item 5, and p_2 being the absolute pressure in inches of mercury of dry saturated steam from Marks and Davis Steam Tables corresponding to the temperature t_2.

Item.
26. From data taken during each run corrected for calibration error.
27. From formula:

$$\text{Relative humidity}=\frac{p_3}{p_1};$$

in which p_3=pressure in pounds per square inch of saturated steam from Marks and Davis steam tables corresponding to dew point temperature, item 26;

p_1=pressure in pounds per square inch of saturated steam from Marks and Davis steam tables corresponding to fireroom temperature, item 13.

28. Item 27 multiplied by the density in pounds per cubic foot of dry saturated steam from Marks and Davis steam tables corresponding to fireroom temperature, item 13.
29. From formula:

$$a=1.3264\times\frac{b-p_3}{t_1+459.6};$$

in which a =density of dry air in pounds per cubic foot;

b =barometric pressure in inches of mercury, item 5;

p_3=the absolute pressure in inches of mercury of dry saturated steam from Marks and Davis steam tables corresponding to the dew point temperature, item 26.

$t^1+459.6$=absolute temperature corresponding to fireroom temperature, item 13;

$1.3264=0.080728\times\frac{491.6}{29.92}$, being the "proportional" density in pounds per cubic foot of dry air at 1° F. absolute temperature and under 1 inch mercury absolute pressure.

30. Item 28 divided by item 29.
31. One-half the sum of items 25 and 30.
32. From information received.
33. From information received.
34. From weighings made during each run upon calibrated scales.
35. From analyses of representative samples selected during each run.
36. Item 34 minus the product of items 34 and 35.
37. From weighings made during each run upon calibrated scales, corrected for moisture.
38. From weighings made during each run upon calibrated scales, corrected for moisture.
39. From weighings made during each run upon calibrated scales, corrected for moisture.
40. Sum of items 37, 38, and 39.
41. Item 36 minus item 40.
42. Item 40 divided by item 36.
43. From weighings made after each run upon calibrated scales, corrected for moisture.

44.
45.
46. From analyses of representative samples selected during each run.
47.

48.
49.
50.
51. From analyses of representative samples selected during each run.
52.
53.

54. Item 44 divided by the sum of items 45, 46, and 47.

55.
56.
57. From analyses of representative samples selected during each run.
58.
59.

60.
61. From analyses of representative samples selected during each run.
62.

63.
64. From analysis of representative samples selected during each run.
65.

Item.

66.
67. From analyses of representative samples selected after each run.
68.
69.
70. From analyses of representative samples selected after each run.
71.
72. From determinations with representative samples.
73. Item 72 divided by the difference between unity and item 53.
74. From formula:

$$\text{Calorific value}=14544C+62028\left(H-\frac{O}{8}\right)+4050S;$$

in which C=proportion of carbon, item 49,
H=proportion of hydrogen, item 48,
O=proportion of oxygen, item 51, and
S=proportion of sulphur, item 52, in 1 pound of coal.

75. Item 74 divided by the difference between unity and item 53.
76. Item 36 divided by item 4.
77. Item 41 divided by item 4.
78. Item 76 divided by 58⅓ square feet of grate surface.
79. Item 77 divided by 2,161 square feet of heating surface.
80. From data taken during each run corrected for calibration error and for exposed stem.
81. From data taken during each run corrected for calibration error and for water column.
82. From Marks and Davis Steam Tables corresponding to throttling calorimeter data, items 80 and 81.
83. From formula:

$$x_1=\frac{H-q_1}{r_1};$$

in which H=heat in 1 pound of wet steam above 32° F., item 82.
q_1=heat of liquid from Marks and Davis Steam Tables corresponding to steam temperature, item 14,
r_1=latent heat from Marks and Davis Steam Tables corresponding to steam temperature, item 14,
x_1=dryness fraction.

84. Item 83 subtracted from unity or from 100 per cent.
85. From $H-q_1$;
in which H=heat in 1 pound of wet steam above 32° F., item 82, and
q_1=heat of liquid from Marks and Davis Steam Tables corresponding to feed water temperature, item 16.
86. From H_1-q_1;
in which H_1=total heat of dry saturated steam from Marks and Davis Steam Tables corresponding to steam temperature, item 14, and
q_1=heat of liquid from Marks and Davis Steam Tables corresponding to feed water temperature, item 16.
87. Item 85 divided by item 86.
88. Item 86 divided by 970.4 British thermal units to evaporate 1 pound of steam from and at 212° F.
89. From weighings made during each run upon calibrated scales, corrected for difference in water levels in feed tank and in boiler.
90. Item 89 multiplied by item 87.
91. Item 90 multiplied by item 88.
92. Item 90 divided by item 4.
93. Item 91 divided by item 4.
94. Item 93 divided by 2,161 square feet of heating surface.
95. Heating surface, 2,161 square feet, multiplied by 3.45 pounds of steam per hour from and at 212° F. per square foot of heating surface.
96. Heating surface, 2,161 square feet, divided by 10 square feet of heating surface per boiler horsepower.
97. Item 93 divided by 34.5 pounds of steam per hour from and at 212° F. per boiler horsepower.
98. Item 97 divided by item 96, or item 93 divided by item 95.
99. Item 89 divided by item 34.
100. Item 90 divided by item 36.
101. Item 91 divided by item 34.

Item.

102. Item 91 divided by item 36.
103. Item 91 divided by item 41.
104. Item 102 multiplied by 970.4 and divided by item 72.
105. Item 103 multiplied by 970.4 and divided by item 73.
106. From observations made during each run.
107. From observations made during each run.

$$\left.\begin{array}{l}108\\109\\110\\111\\112\\113\\114\\115\\116\\117\end{array}\right\}\text{From analyses of representative samples taken during each run.}$$

118. From data taken during each run.
119. Item 118 divided by item 36.
120. From data taken during each run.
121. Item 120 divided by item 36.
122. Product of total weight of ashes removed and percentage of moisture by analyses of samples, divided by item 36.
123. Item 121 minus item 122.
124. From the formula:

$$A=4.33\left[\frac{8}{3}C+8\left(H-\frac{O}{8}\right)+S\right]$$

in which A = pounds of air per pound of dry coal,
C = proportion of carbon, item 49,
H = proportion of hydrogen, item 48,
O = proportion of oxygen, item 51, and
S = proportion of sulphur, item 52, in 1 pound of dry coal.

125. From the expression

$$\frac{(\text{Item } 49+\text{item } 53-\text{item } 42)\times 0.07829\ N}{0.0335\ (CO_2+CO)\times 0.769}$$

in which 0.07829 pound is the weight of 1 cubic foot of nitrogen under normal conditions;
0.769 is the ratio by weight of nitrogen to air in the atmosphere;
0.0335 pound is the weight of carbon contained in each cubic foot of CO_2 and CO under normal conditions, and
CO_2, CO, and N, are the proportions by volume of carbon dioxide, item 113, carbon monoxide, item 115, and nitrogen, item 117, in the dry flue gases at the base of the stack.

126. Item 125 minus item 124.
127. Item 126 divided by item 124.

HEAT BALANCE.

128. Item 102 multiplied by 970.4 B. t. u. to evaporate 1 pound of water from and at 212° F.
129. From the expression

$$\frac{\begin{array}{l}(\text{Item } 60+\text{item } 61)\times\text{item } 37+\\(\text{Item } 63+\text{item } 64)\times\text{item } 38+\\(\text{Item } 66+\text{item } 67)\times\text{item } 39\end{array}}{\text{Item } 36}\times 14544$$

130. From the expression

$$(\text{Item } 49+\text{Item } 53-\text{Item } 42)\times\frac{CO}{CO_2+CO}\times 10150;$$

in which CO_2 and CO are the proportions of carbon dioxide, item 113, and carbon monoxide, item 115, respectively, in the dry-flue gases at the base of the stack; and 10,150 British thermal units is the calorific value of 1 pound of carbon in burning from CO to CO_2.

Item,

131. From the expression

$$\left[\frac{\text{Item }126\times0.231}{0.08922}+\frac{\text{Item }126\times0.769}{0.07829}\right]\times(t_s-t_1)\times k_1$$

in which 0.231 is the ratio by weight of oxygen to air in the atmosphere;

0.769 is the ratio by weight of nitrogen to air in the atmosphere;

0.08922 is the weight of 1 cubic foot of oxygen under normal conditions;

0.07829 is the weight of 1 cubic foot of nitrogen under normal conditions;

t_s=temperature at base of stack, item 20;

t_1=fireroom temperature, item 13;

k_1=mean specific heat in British thermal units per cubic foot under normal conditions, of oxygen and nitrogen for 1° F. temperature change between t_1 and t_s, as calculated by the expression $0.0189+0.0000009\ (t_s+t_1)$, given in Richards's Metallurgical Calculations.

132. From the expression

$$\frac{\text{Item }49+\text{Item }53-\text{Item }42}{0.0335\ (CO_2+CO)}\times(t_s-t_1)\times$$

$$[k_1\times(O+CO+N)+k_2\times CO_2]+$$

$$[(t_s-t_1)\times k_3\times SO_2]-\text{Item }131;$$

in which 0.0335 pound is the weight of carbon contained in each cubic foot of CO_2 and of CO under normal conditions;

CO_2, O, CO, and N are the proportions by volume of carbon dioxide, item 113; oxygen, item 114; carbon monoxide, item 115; and nitrogen, item 117, respetcively, contained in the dry-flue gases at the base of the stack;

SO_2 is the number of cubic feet of sulphur dioxide under normal conditions per pound of dry coal, as calculated from

$$\frac{\text{Item }52\times2}{0.1786},\ \text{for } SO_2$$

is twice as heavy as the sulphur from which it is formed and the density of sulphur dioxide is 0.1786 pound per cubic foot under normal conditions;

t_s=temperature at base of stack, item 20;

t_1=fireroom temperature, item 13;

k_1=mean specific heat in British thermal units per cubic foot under normal conditions of oxygen, carbon monoxide, and nitrogen for 1° F. temperature change between t_1 and t_s, as calculated by the formula

$$s_m=0.0189+0.0000009\ (t_s+t_1)$$

given in Richards's Metallurgical Calculations;

k_2=mean specific heat in British thermal units per cubic foot under normal conditions of carbon dioxide for 1° F. temperature change between t_1 and t_s, as calculated by the formula

$$s_m=0.023+0.000008\ (t_s+t_1)$$

given in Richards's Metallurgical Calculations;

k_3=mean specific heat in British thermal units per cubic foot under normal conditions of sulphur dioxide for 1° F. temperature change between t_1 and t_s, as calculated by the formula

$$s_m=0.0225+0.0000104\ (t_s+t_1)$$

given in Richards's Metallurgical Calculations.

Item.

133. From the expression

$$\text{Item } 48\times 9\times [h+k\,(t_s-t)-q]$$

in which 9 is the ratio of weight of steam to the weight of hydrogen contained in it;
h=total heat of dry saturated steam from Marks and Davis Steam Tables corresponding to barometric pressure, item 5 or 6;
t_s=temperature at base of stack, item 20;
t=temperature from Marks and Davis Steam Tables corresponding to barometric pressure, item 5 or 6;
k=proper value of specific heat of superheated steam between the temperatures t and t_s, taken from Marks and Davis Steam Tables; and
q=heat of liquid from Marks and Davis Steam Tables corresponding to fireroom temperature, item 13.

134. From the expression

$$\text{Item } 54\times [h+k\,(t_s-t)-q]$$

in which h, t_s, t, k, and q have the same significance as under item 133.

135. From the expression

$$\text{Item } 119\times [h+k\,(t_s-t)-q]$$

in which h, t_s, t, k, and q have the same significance as under item 133.

136. From the expression

$$\text{Item } 31\times \text{Item } 125\times k\,(t_s-t_1)$$

in which t_s=temperature at base of stack, item 20;
t_1=fireroom temperature, item 13;
k=proper value of specific heat of superheated steam between temperature t_s and the dew point, item 26, taken from Marks and Davis Steam Tables.

137. From the expression

$$\text{Item } 123\times [h+k\,(t_s-t)-q]$$

in which h, t_s, t, k, and q have the same significance as under item 133.

138. By difference; that is, item 72 minus the sum of items 128 to 137, inclusive.
139. Sum of items 128 to 138, inclusive.
140. Item 103 multiplied by 970.4 British thermal units to evaporate 1 pound of water from and at 212° F.

141. From

$$\frac{\text{Item } 130}{1-\text{Item } 42}\cdot$$

142. From

$$\frac{\text{Item } 131}{1-\text{Item } 42}\cdot$$

143. From

$$\frac{\text{Item } 132}{1-\text{Item } 42}\cdot$$

144. From

$$\frac{\text{Item } 133}{1-\text{Item } 42}\cdot$$

145. From

$$\frac{\text{Item } 134}{1-\text{Item } 42}\cdot$$

146. From

$$\frac{\text{Item } 135}{1-\text{Item } 42}\cdot$$

147. From

$$\frac{\text{Item } 136}{1-\text{Item } 42}\cdot$$

Item.
148. From

$$\frac{\text{Item } 137}{1-\text{Item } 42}.$$

149. By difference; that is, item 73 minus the sum of items 140 to 148, inclusive.
150. Sum of items 140 to 149, inclusive.

Report in triplicate.

[First indorsement.

UNITED STATES NAVAL ACADEMY,
Annapolis, Md., March 1, 1915.

From: Head of naval engineering experiment station.
To: Bureau of Steam Engineering.
Subject: Report on evaporative test of Matanuska (Alaska) coal and comparison with Pocahontas coal.
References: (a) Bureau of Steam Engineering letter 135357—623-15-F, September 26, 1914.
(b) Engineer Experiment Station, first indorsement, 268-ES-14.B., February 4, 1914.
Inclosure: 1 (Report of test).

1. Forwarded, approved.

T. W. KINKAID.

COAL-ANALYSIS REPORT.

Laboratory No. 20021. Can No. 67255.
Sample of coal (over 1-inch-mesh screen).
State, Alaska; county, Matanuska.
From United States Naval Academy, Annapolis, Md.
Net weight, 1,236.5 grams.
Date of sampling, October 30, 1914.
Date of laboratory sampling, November 4, 1914.
Date of analysis, November 6, 1914.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 0.5.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.53	1.05	....	....
Volatile matter	20.32	20.21	20.42	26.41
Fixed carbon	56.60	56.31	56.91	73.59
Ash	22.55	22.43	22.67	....
	100.00	100.00	100.00	100.00
Ultimate analysis:				
Hydrogen	3.93	3.97	3.89	5.03
Carbon	66.47	66.12	66.82	86.41
Nitrogen	1.45	1.44	1.46	1.89
Oxygen	5.15	5.59	4.71	6.09
Sulphur	.45	.45	.45	.58
Ash	22.55	22.43	22.67	....
	100.00	100.00	100.00	100.00
Calorific value determined:				
Calories	6,428	6,395	6,463	8,358
British thermal units	11,570	11,511	11,633	15,044
Calorific value calculated from ultimate analysis:				
Calories	....	6,479	....	....
British thermal units	....	11,662	....	....

Fusing temperature of ash in 50-50 mixture of H_2 and water vapor: 1,173° C.= 2,143° F.

(Signed) A. C. FIELDNER, *Chemist*.

Date, November 18, 1914.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure B-1.

Laboratory No. 20022. Can No. 67235.
Sample of coal (over ½-inch-mesh screen).
State, Alaska; county, Matanuska.
From United States Naval Academy, Annapolis, Md.
Net weight, 1,279 grams.
Date of sampling, October 30, 1914.
Date of laboratory sampling, November 4, 1914.
Date of analysis, November 6, 1914.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 0.5.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.45	0.90		
Volatile matter	20.00	19.91	20.09	25.81
Fixed carbon	57.48	57.22	57.74	74.19
Ash	22.07	21.97	22.17	
	100.00	100.00	100.00	100.00
Ultimate analysis:				
Hydrogen	3.95	3.98	3.92	5.04
Carbon	66.89	66.59	67.20	86.35
Nitrogen	1.34	1.33	1.34	1.72
Oxygen	5.36	5.74	4.98	6.39
Sulphur	.39	.39	.39	.50
Ash	22.07	21.97	22.17	
	100,00	100.00	100.00	100.00
Calorific value determined:				
Calories	6,476	6.447	6,506	8,360
British thermal units	11,657	11,605	11,711	15,048
Calorific value calculated from ultimate analysis:				
Calories		6,513		
British thermal units		11,723		

Fusing temperature of ash in 50-50 mixture of H_2 and water vapor: 1,255° C.= 2,291° F.

(Signed) A. C. FIELDNER, *Chemist*.

Date, November 18, 1914.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure B-2.

Laboratory No. 20023. Can No. 67244.
Sample of coal (over ½-inch-mesh screen).
State, Alaska; county, Matanuska.
From United States Naval Academy, Annapolis, Md.
Net weight, 1,177.6 grams.
Date of sampling, October 30, 1914.
Date of laboratory sampling, November 4, 1914.
Date of analysis, November 5, 1914.
For Bureau of Mines section, Navy Department.
Collector, T. W. Kinkaid, United States Navy.

Air-dry loss, 0.5.	Coal (air dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.38	0.85		
Volatile matter	20.60	20.50	20.68	23.85
Fixed carbon	65.79	65.48	66.04	76.15
Ash	13.23	13.17	13.28	
	100.00	100.00	100.00	100.00
Ultimate analysis:				
Hydrogen	4.33	4.36	4.31	4.97
Carbon	75.88	75.52	76.17	87.83
Nitrogen	1.39	1.38	1.39	1.60
Oxygen	4.74	5.14	4.42	5.10
Sulphur	.43	.43	.43	.50
Ash	13.23	13.17	13.28	
	100.00	100.00	100.00	100.00
Calorific value determined:				
Calories	7,361	7,326	7,389	8,520
British thermal units	13,250	13,187	13,300	15,336
Calorific value calculated from ultimate analysis:				
Calories		7,394		
British thermal units		13,309		

Fusing temperature of ash in 50–50 mixture of H_2 and water vapor: 1227° C.= 2,241° F.

(Signed) A. C. FIELDNER, *Chemist.*

Date, November 18, 1914.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure B–3.

Laboratory No. 20024. Can No. 67271.
Sample of coal (over $\frac{1}{16}$-inch-mesh screen).
State, Alaska; county, Matanuska.
From United States Naval Academy, Annapolis, Md.
Net weight, 1,072.4 grams.
Date of sampling, October 30, 1914.
Date of laboratory sampling, November 4, 1914.
Date of analysis, November 6, 1914.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 0.6.	Coal (air dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.23	0.81		
Volatile matter	21.12	21.00	21.17	23.02
Fixed carbon	70.62	70.21	70.78	76.98
Ash	8.03	7.98	8.05	
	100.00	100.00	100.00	100.00
Ultimate analysis:				
Hydrogen	4.62	4.65	4.60	5.00
Carbon	81.34	80.87	81.53	88.66
Nitrogen	1.48	1.47	1.48	1.61
Oxygen	4.05	4.55	3.86	4.21
Sulphur	.48	.48	.48	.52
Ash	8.03	7.98	8.05	
	100.00	100.00	100.00	100.00
Calorific value determined:				
Calories	7,886	7,840	7,904	8,596
British thermal units	14,195	14,112	14,227	15,473
Calorific value calculated from ultimate analysis:				
Calories		7,951		
British thermal units		14,312		

Fusing temperature of ash in 50-50 mixture of H_2 and water vapor: 1357° C.= 2,475° C.

(Signed) A. C. Fieldner, *Chemist.*

Date, November 18, 1914.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure, B-4.

Laboratory No. 20025. Can No. 67234.
Sample of coal (through $\frac{1}{10}$-inch-mesh screen).
State, Alaska; county, Matanuska.
From United States Naval Academy, Annapolis, Md.
Net weight, 1,196.3 grams.
Date of sampling, October 30, 1914.
Date of laboratory sampling, November 4, 1914.
Date of analysis, November 6, 1914.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 0.7.	Coal (air dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Approximate analysis:				
Moisture	0.20	0.87		
Volatile matter	21.15	21.01	21.19	22.78
Fixed carbon	71.70	71.22	71.85	77.22
Ash	6.95	6.90	6.96	
	100.00	100.00	100.00	100.00
Ultimate analysis:				
Hydrogen	4.68	4.72	4.66	5.01
Carbon	81.70	81.15	81.86	87.98
Nitrogen	1.54	1.53	1.54	1.65
Oxygen	4.64	5.21	4.49	4.83
Sulphur	.49	.49	.49	.53
Ash	6.95	6.90	6.96	
	100.00	100.00	100.00	100.00
Calorific value determined:				
Calories	8,003	7,949	8,019	8,619
British thrmal units	14,405	14,308	14,434	15,514
Calorific value calculated from ultimate analysis:				
Calories		7,970		
British thermal units		14,346		

Fusing temperature of ash in 50-50 mixture H_2 and water vapor, 1,248° C.=2,278° F.

(Signed) A. C. Fieldner, *Chemist.*

Date, November 18, 1914.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure B-5.

Laboratory No. 20542. Can No. 24249.
Sample of coal as received.
From United States Naval Academy, Annapolis, Md.
Gross weight, 1,398 pounds.
Net weight, 1,315.4 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 26, 1914.
Date of analysis, December 30, 1914.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 0.6.	Coal (air dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.60	1.16	....	....
Volatile matter	21.87	21.75	22.00	24.29
Fixed carbon	68.15	67.76	68.56	75.71
Ash	9.38	9.33	9.44	....
	100.00	100.00	100.00	100.00
Ultimate analysis:				
Hydrogen	4.65	4.68	4.60	5.08
Carbon	79.45	79.01	79.93	88.26
Nitrogen	1.50	1.49	1.51	1.67
Oxygen	4.55	5.02	4.04	4.46
Sulphur	.47	.47	.48	.53
Ash	9.38	9.33	9.44	....
	100.00	100.00	100.00	100.00
Calorific value determined:				
Calories	7,735	7,692	7,782	8,593
British thermal units	13,923	13,846	14,008	15,467
Calorific value calculated from ultimate analysis:				
Calories	....	7,790	....	....
British thermal units	....	14,022	....	....

(Signed) A. C. Fieldner, *Chemist.*

Date, January 12, 1915.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-1.

Laboratory No. 20543. Can No. 24843.
Sample of clinker from grate furnace No. 2 (6.10 p. m.).
Remarks: From United States Naval Academy, Annapolis, Md.
Gross weight, 105 pounds.
Net weight, 1,479 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 28, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 12.1.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.10	12.22	....	....
Volatile matter	1.92	1.69	1.93	....
Fixed carbon	16.73	14.70	16.74	....
Ash	81.25	71.39	81.33	....
	100.00	100.00	100.00	....

Date, January 12, 1915. (Signed) A. C. Fieldner, *Chemist.*

Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-2.

Laboratory No. 20544. Can No. 24552.
Sample of clinker from grate of furnace No. 3 (10.10 p. m.).
Remarks: From United States Naval Academy, Annapolis, Md.
Gross weight, 69 pounds.

Net weight, 1,258.6 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 28, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry, loss 4.4.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.15	4.56	....	....
Volatile matter	2.15	2.05	2.15	....
Fixed carbon	23.30	22.28	23.34	....
Ash	74.40	71.11	74.51	....
	100.00	100.00	100.00	....

Date, January 12, 1915. (Signed) A. C. FIELDNER, *Chemist.*

Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-3.

Laboratory No. 20545. Can No. 24966.
Sample of clinker from grate of furnace No. 1 (2.10 a. m.).
Remarks: From United States Naval Academy, Annapolis, Md.
Gross weight, 117 pounds.
Net weight, 1,268.8 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 26, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	....	0.05	....	....
Volatile matter	....	1.05	1.05	....
Fixed carbon	....	15.10	15.11	....
Ash	....	83.80	83.84	....
	....	100.00	100.00	....

Date, January 12, 1915. (Signed) A. C. FIELDNER, *Chemist.*

Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-4.

Laboratory No. 20546. Can No. 24633.
Sample of clinker from grate of furnace No. 2 (5.20 a. m.).
Remarks: From United States Naval Academy, Annapolis, Md.
Gross weight, 55 pounds.
Net weight, 1,550.9 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 26, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 0.2.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.13	0.28	....	....
Volatile matter	.67	.67	0.67	....
Fixed carbon	4.57	4.56	4.58	....
Ash	94.63	94.49	94.75	....
	100.00	100.00	100.00	....

(Signed) A. C. Fieldner, *Chemist*.

Date, January 12, 1915.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-5.

Laboratory No. 20547. Can No. 24844.
Sample of clinker from grate of furnace No. 3 (5.37 a. m.).
Remarks: From United States Naval Academy, Annapolis, Md.
Gross weight, 42 pounds.
Net weight, 1,618.3 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 26, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 0.1.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.10	0.23	....	....
Volatile matter	1.76	1.76	1.76	....
Fixed carbon	8.39	8.38	8.40	....
Ash	89.75	89.63	89.84	....
	100.00	100.00	100.00	....

(Signed) A. C. Fieldner, *Chemist*.

Date, January 12, 1915.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-6.

Laboratory No. 20548. Can No. 24559.
Sample of clinker from grate of furnace No. 2 (6 a. m.).
Remarks: United States Naval Academy, Annapolis, Md.
Gross weight, 75 pounds.
Net weight, 1,628.6 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 26, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 0.1.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.13	0.19		
Volatile matter	.78	.78	0.78	
Fixed carbon	4.59	4.59	4.60	
Ash	94.50	94.44	94.62	
	100.00	100.00	100.00	

(Signed) A. C. Fieldner, *Chemist.*

Date, January 12, 1915.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-7.

Laboratory No. 20549. Can No. 24973.
Sample of clinker from grate of furnace No. 2 (6.10 a. m.).
Remarks: From United States Naval Academy, Annapolis, Md.
Gross weight, 104 pounds.
Net weight, 1,285.2 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 26, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 1.9.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.13	2.03		
Volatile matter	2.50	2.45	2.50	
Fixed carbon	25.32	24.84	25.36	
Ash	72.05	70.68	72.14	
	100.00	100.00	100.00	

Date, January 12, 1915.

(Signed) A. C. Fieldner, *Chemist.*

Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-8.

Laboratory No. 20550. Can No. 24433.
Sample of clinker from grate of furnace No. 3 (10.10 a. m.).
Remarks: From United States Naval Academy, Annapolis, Md.
Gross weight, 77 pounds.
Net weight, 1,343 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 26, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 0.1.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.10	0.15	....	....
Volatile matter	1.60	1.60	1.60	....
Fixed carbon	13.72	13.71	13.73	....
Ash	84.58	84.54	84.67	....
	100.00	100.00	100.00	....

Date, January 12, 1915.

(Signed) A. C. Fieldner, *Chemist.*

Naval Engineering Experiment Station, Annapolis, Md.
Test, 460.
Inclosure E-9.

Laboratory No. 20551. Can No. 24340.
Sample of clinker from grate of furnace No. 1 (12.15 p. m.).
Remarks: From United States Naval Academy, Annapolis, Md.
Gross weight, 119 pounds.
Net weight, 1,414.2 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 28, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 0.1.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.08	0.13	....	....
Volatile matter	.98	.98	0.98	....
Fixed carbon	13.26	13.25	13.27	....
Ash	85.68	85.64	85.75	....
	100.00	100.00	100.00	....

Date, January 12, 1915.

(Signed) A. C. Fieldner, *Chemist.*

Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-10.

Laboratory No. 20552. Can No. 24576.
Sample of clinker from grate of furnace No. 2 (1.10 p. m.).
Remarks: From United States Naval Academy, Annapolis, Md.
Gross weight, 74 pounds.
Net weight, 1,183.1 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 26, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 0.6.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.10	0.71	....	....
Volatile matter	1.67	1.66	1.67	....
Fixed carbon	26.35	26.19	26.38	....
Ash	71.88	71.44	71.95	....
	100.00	100.00	100.00	....

(Signed) A. C. Fieldner, *Chemist.*

Date, January 12, 1915.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-11.

Laboratory No. 20554. Can No. 24818.
Sample of clinker from bridge wall after run.
Remarks: From United States Naval Academy, Annapolis, Md.
Gross weight, 51 pounds.
Net weight, 1,696.2 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 28, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 0.0.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	....	0.08	....	....
Volatile matter	....	.40	0.40	....
Fixed carbon	....	1.29	1.29	....
Ash	....	98.23	98.31	....
	....	100.00	100.00	....

(Signed) A. C. Fieldner, *Chemist.*

Date, January 12, 1915.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-12.

Laboratory No. 20556. Can No. 24440.
Sample of ashes during run.
Remarks: From United States Naval Academy, Annapolis, Md.
Gross weight, 221 pounds.
Net weight, 1,175.9 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 28, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 5.3.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	0.33	5.60	....	....
Volatile matter	7.02	6.65	7.04	....
Fixed carbon	31.97	30.28	32.08	....
Ash	60.68	57.47	60.88	....
	100.00	100.00	100.00	....

(Signed) A. C. FIELDNER, *Chemist.*

Date, January 12, 1915.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-13.

Laboratory No. 20558. Can No. 24544.
Sample of soot from boiler.
Remarks: From United States Naval Academy, Annapolis, Md.
Gross weight, 231 pounds.
Net weight, 561.8 grams.
Date of sampling, December 12, 1914.
Date of laboratory sampling, December 28, 1914.
Date of analysis, January 5, 1915.
For Bureau of Mines section, Navy Department.
Collector, Capt. T. W. Kinkaid, United States Navy.

Air-dry loss, 9.4.	Coal (air-dried).	Coal (as received).	Coal (moisture free).	Coal (moisture and ash free).
Proximate analysis:				
Moisture	1.10	10.42	....	....
Volatile matter	5.75	5.21	5.82	10.59
Fixed carbon	48.62	44.03	49.15	89.41
Ash	44.53	40.34	45.03	....
	100.00	100.00	100.00	100.00

(Signed) A. C. FIELDNER, *Chemist.*

Date, January 12, 1915.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-14.

Laboratory No. 20556.
Can No. 24440.
Sample of ashes during run.
Collector, Capt. T. W. Kinkaid, United States Navy.

ANALYSIS OF ASH.

	Per cent.
Silica (SiO_2)	50.0
Alumina (Al_2O_3)	34.5
Ferric oxide (Fe_2O_3)	7.9
Calcium oxide (CaO)	5.1
Magnesium oxide (MgO)	1.9
Sodium oxide (Na_2O)+potassium oxide (K_2) by difference	.6
Total	100.0

(Signed) A. C. FIELDNER, *Chemist.*

Pittsburgh, Pa., January 18, 1915.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-15.

Laboratory No. 20551.
Can No. 24340.
Sample of clinker from grate, furnace No. 1, 12.15 p. m.
Collector, Capt. T. W. Kinkaid, United States Navy.

ANALYSIS OF ASH.

	Per cent.
Silica (SiO_2)	52.3
Alumina (Al_2O_3)	31.9
Ferric oxide (Fe_2O_3)	6.9
Calcium oxide (CaO)	4.5
Magnesium oxide (MgO)	1.9
Sodium oxide (Na_2O)+potassium oxide (K_2O) by difference	2.5
Total	100.0

(Signed) A. C. FIELDNER,
Chemist.

Pittsburgh, Pa., January 18, 1915.
Naval Engineering Experiment Station, Annapolis, Md.
Test 460.
Inclosure E-16.
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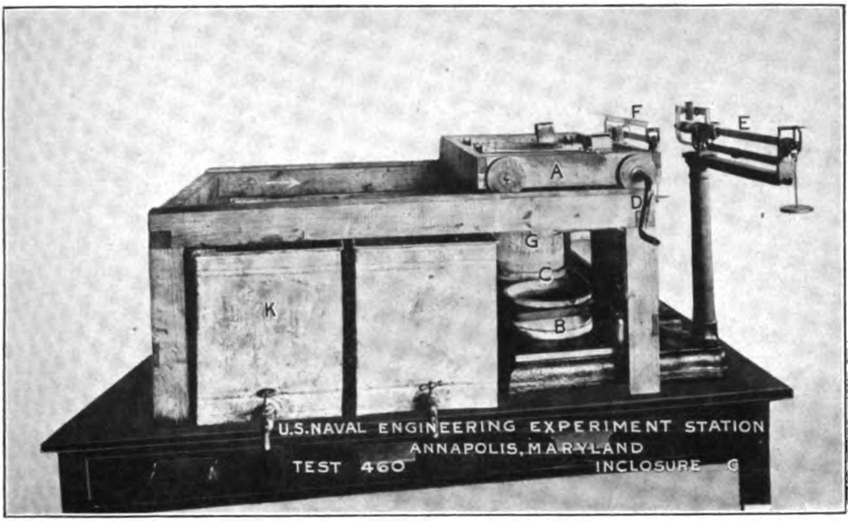

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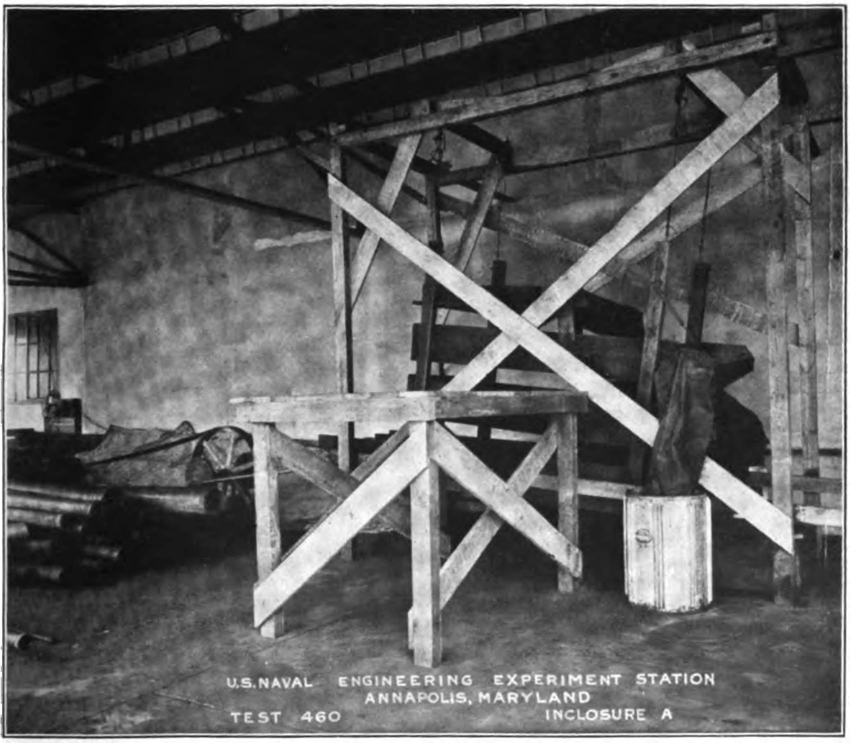

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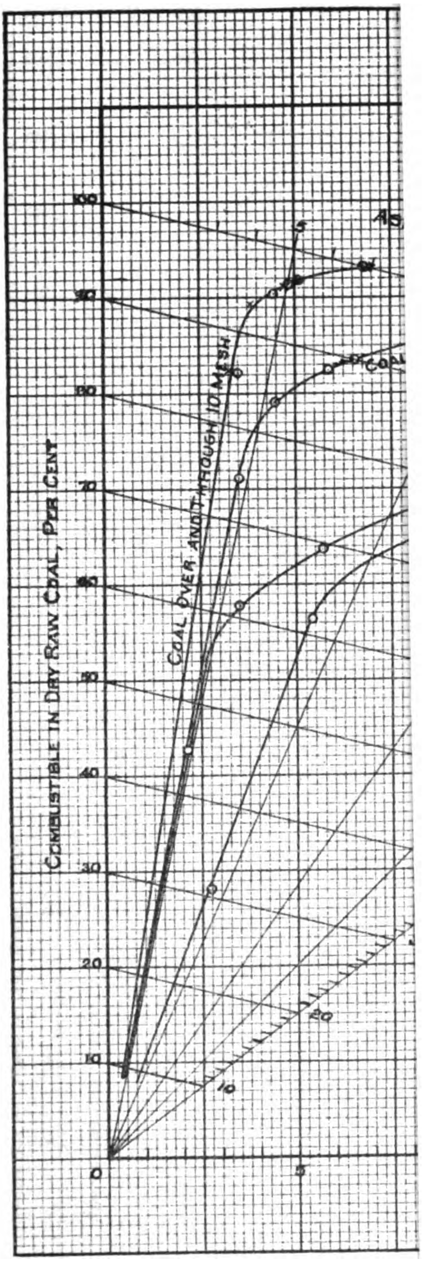

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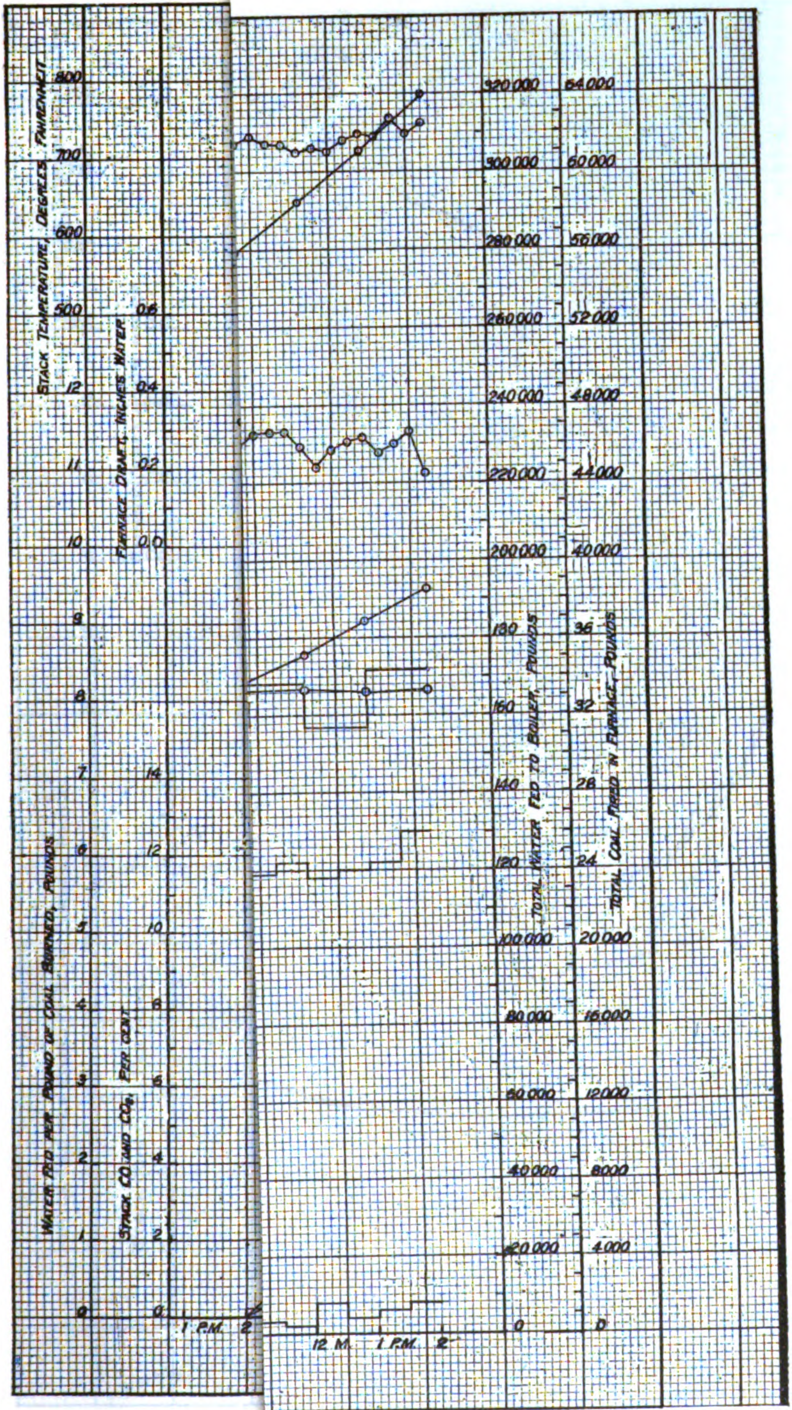

MATANUSKA, ALASKA COAL, DEC 1914

TRACED BY G.B. CHECKED BY L.E.S. DATE FEB. 17, 1915.

S NAVAL ENGINEERING EXPERIMENT STATION

ANNAPOLIS MD.

TEST 460 DR. NO. 6.57

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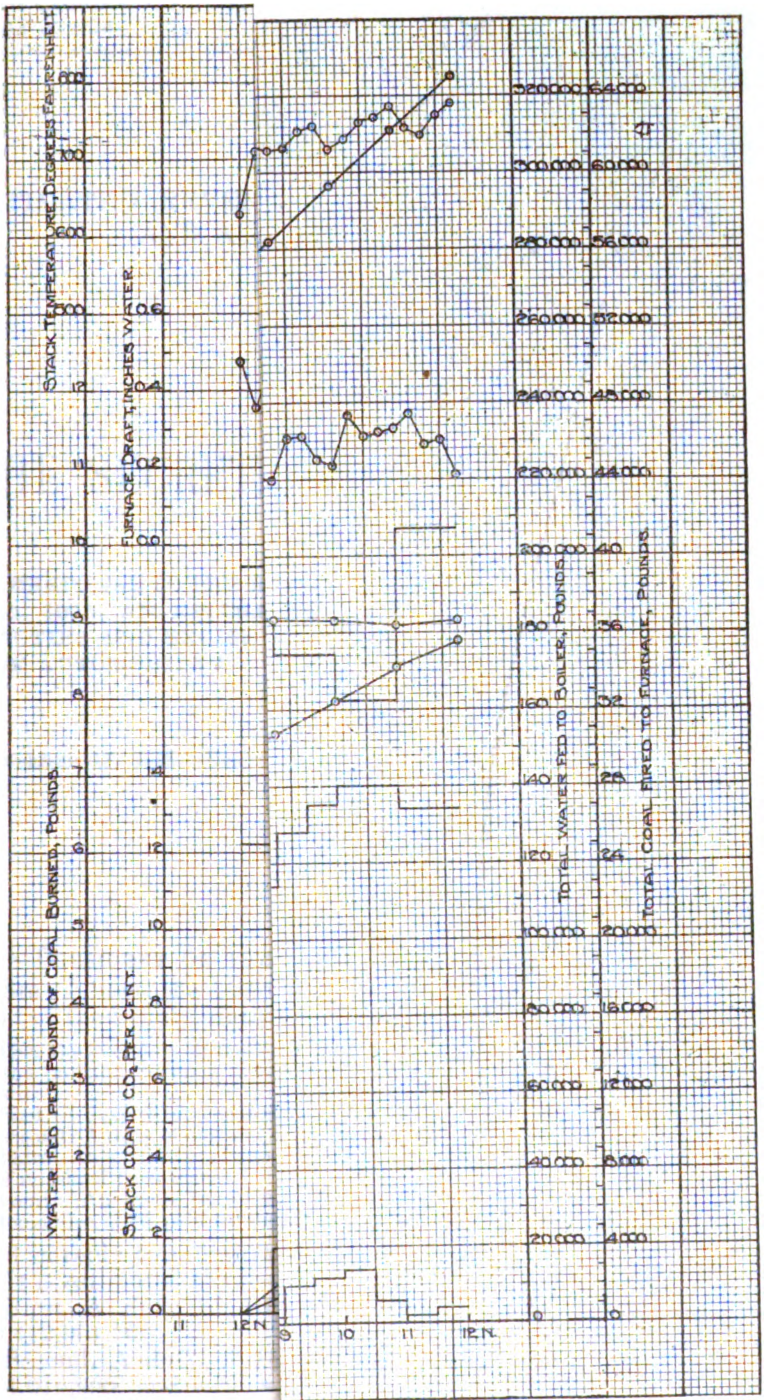

POCAHONTAS COAL, DEC 1913
D BY G.B. CHECKED BY L.E.S. DATE FEB. 17, 1915.
AVAL ENGINEERING EXPERIMENT STATION
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64TH CONGRESS, 1st Session. | SENATE. | DOCUMENT No. 227.

ESTIMATED REVENUE FROM DUTIES ON TEA, SUGAR, AND AUTOMOBILE HORSEPOWER.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

SUBMITTING,

IN RESPONSE TO THE RESOLUTION OF THE SENATE OF DECEMBER 16, 1915, AN ESTIMATE OF REVENUE TO BE DERIVED FROM DUTIES AND EXCISE TAXES ON TEA, SUGAR, AND HORSEPOWER OF AUTOMOBILES.

DECEMBER 17, 1915.—Referred to the Committee on Finance and ordered to be printed.

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, December 17, 1915.

The PRESIDENT OF THE SENATE.

SIR: I have the honor to acknowledge the receipt of the resolution of the Senate, dated December 16, 1915—

> That the Secretary of the Treasury is directed to submit to the Senate an estimate of the probable revenue to be derived from the following duties and excise taxes, to wit:
>
> First. A duty of ten cents per pound on tea.
>
> Second. A duty of one and one-half cents per pound on sugar.
>
> Third. An excise tax of one cent per pound on sugar produced in the United States and its island possessions.
>
> Fourth. An excise tax of twenty-five cents per horsepower on the production of automobiles, to be paid by the manufacturer.

and in reply to submit the following:

It is estimated that—

First. A duty of 10 cents per pound on tea would produce $9,412,901.50;

Second. A duty of 1½ cents per pound on sugar would produce $74,016,990, and with a 20 per cent reduction on the Cuban sugars it would be $60,946,000;

Third. An excise tax of 1 cent per pound on sugar produced in the United States and its island possessions would produce $41,373,733; and

Fourth. An excise tax of 25 cents per horsepower on the production of automobiles, to be paid by the manufacturer, would produce $5,250,000.

Respectfully,

W. G. McAdoo, *Secretary.*

O

64TH CONGRESS, } SENATE. { DOCUMENT
1st Session. } { No. 228.

MODIFICATION OF THE SEAMEN'S ACT.

LETTER

FROM

THE SECOND ASSISTANT SECRETARY OF STATE,

TRANSMITTING

COPY OF RESOLUTIONS ADOPTED BY THE AMERICAN ASSOCIATION OF JAPAN, KOBE BRANCH, FAVORING THE REPEAL OR AMENDMENT OF THE SO-CALLED SEAMEN'S BILL AND THE ENACTMENT OF ADEQUATE LEGISLATION WHEREBY AMERICAN SHIPS MAY TRAVERSE THE PACIFIC OCEAN ON EQUAL TERMS WITH THOSE OF ANY OTHER NATION.

DECEMBER 13, 1915.—Referred to the Committee on Commerce and ordered to be printed.

DEPARTMENT OF STATE,
Washington, November 8, 1915.

JAMES M. BAKER, Esq.,
Secretary United States Senate.

SIR: I inclose for your information and for reference to the appropriate committee of the United States Senate a copy of a letter, dated October 12, 1915, from the American Association of Japan, Kobe Branch, inclosing a copy of a resolution adopted by that association on October 7, 1915, regarding the act known as the seamen's bill. A similar letter has been written to the Clerk of the United States House of Representatives.

I am, sir, your obedient servant,
(For the Secretary of State:)

ALVEY A. ADEE,
Second Assistant Secretary.

THE AMERICAN ASSOCIATION OF JAPAN,
Kobe, Japan, October 12, 1915.

Hon. ROBERT LANSING,
Secretary of State, Washington.

DEAR SIR: I have the honor to send you at the request of the American Association of Japan, Kobe Branch, the inclosed resolution recently adopted by the above association.

Very truly, yours,
(Signed) STANLEY F. GUTELIUS,
Honorable Secretary.

THE AMERICAN ASSOCIATION OF JAPAN, KOBE, JAPAN.

The following resolution was passed at a meeting of the executive committee of the American Association of Japan, Kobe Branch, October 7, 1915:

Whereas the Pacific Mail Steamship Co. and the Great Northern Steamship Co. have withdrawn their vessels from the Pacific Ocean, with the result that where formerly there were six vessels aggregating 80,000 tons, flying the American flag on this ocean, there will be hereafter not a single American vessel of any character engaged in regular service;

Whereas the reasons assigned for these withdrawals are the provisions of the so-called seamen's bill, which discriminates against American-owned vessels in favor of foreign ships, most of which are subsidized and in addition employ cheap Asiatic labor;

Whereas the American Association of Japan, Kobe Branch, is greatly concerned at the great harm that will be done to American commercial and political interests through the absence of American shipping on the Pacific Ocean: Be it

Resolved, That the American Association of Japan, Kobe Branch, place on record its profound conviction that the seamen's bill now in force should be amended or repealed, and that adequate legislation be enacted whereby American ships may traverse the Pacific Ocean on equal terms with those of any other nation.

(Signed) J. C. CALHOUN NEWTON, *President.*
(Signed) STANLEY T. GUTELIUS, *Honorable Secretary.*

O

64TH CONGRESS, 1st Session. } SENATE. { DOCUMENT No. 229.

NAVY YARD AT BROOKLYN, N. Y.

LETTER

FROM

THE SECRETARY OF THE NAVY,

INVITING ATTENTION TO THE SERIOUS CONDITIONS EXISTING AT THE NAVY YARD, BROOKLYN, N. Y., AS TO THE DEPTH OF WATER IN THE SHIP CHANNELS LEADING THERETO.

JANUARY 4, 1916.—Referred to the Committee on Commerce and ordered to be printed.

NAVY DEPARTMENT,
Washington, December 21, 1915.

SIR: I have the honor to invite your attention to the serious condition existing at the navy yard, Brooklyn, N. Y., in so far as pertains to the depth of water in ship channels leading thereto. There is not sufficient water in these channels to insure the entering or leaving of a first-class battleship at all times.

At present only one battleship can be handled per day, and then only provided the weather conditions are normal. If the winds are such as to blow the water out of New York Bay, then the depth of water in the approach channel is not sufficient to safely navigate a large ship. As an illustration the following is noted:

On November 3, 1915, the U. S. S. *Texas* (one of our new first-class battleships) was ready to leave the yard, but the prevailing northwest winds had so reduced the depth of water in the Buttermilk Channel that even at high water there was not sufficient depth to insure her leaving the yard in safety. This ship therefore was forced to remain in the navy yard for over 24 hours.

This condition is a serious one and might cause grave complications. I understand there are two propositions before Congress—one providing a channel 35 feet deep and 1,000 feet wide in Buttermilk Channel, and the other north of Governors Island up the East River through Hell Gate. The second would provide for ships passing from the yard to lower New York Bay or to the Sound, a condition highly desirable from a strategic point of view. Either project will provide for free access to the navy yard.

The increase in size of ships has not yet reached its limit. Through injuries received in battle a ship could readily be drawing more water than normally at a time when it was most necessary to dock her.

It is therefore most urgent that an approach channel to the New York Navy Yard be maintained of not less than 35-foot depth at mean low water and 1,000 feet wide, and I can not too strongly urge the serious attention of Congress to this matter.

Sincerely, yours,

JOSEPHUS DANIELS,
Secretary of the Navy.

The PRESIDENT OF THE SENATE.

O

64th Congress, 1st Session. } SENATE. { Document No. 230.

INLAND WATERWAY FROM NEW YORK BAY TO GULF OF MEXICO.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING

A REPORT AS TO THE ESTIMATED TIME, WORK, AND EXPENDITURES NECESSARY TO THE COMPLETION OF AN INLAND WATERWAY BEGINNING WITH NEW YORK BAY AND COMPRISING HUDSON RIVER, ERIE CANAL, THE GREAT LAKES, THE ILLINOIS RIVER, AND THE MISSISSIPPI RIVER FROM ST. PAUL TO THE GULF OF MEXICO, TOGETHER WITH THE EXTENT AND LOCATION OF SUCH WORK, THE AMOUNT OF EXPENDITURES DEVOLVING UPON THE STATES OF NEW YORK AND ILLINOIS, AND THE PROVISIONS HERETOFORE MADE FOR THE SAME.

January 4, 1916.—Referred to the Committee on Commerce and ordered to be printed.

War Department,
Washington, December 31, 1915.

The President of the Senate.

Sir: Referring to Senate resolution dated December 10, instant, directing the Secretary of War to inform the Senate—

First. As to the estimated time, work, and expenditures necessary to the completion of an inland waterway beginning with New York Bay and comprising the Hudson River, the Erie Canal, the Great Lakes, the Illinois and Michigan Canal, the Hennepin Canal, the Illinois River, and the Mississippi River from St. Paul to the Gulf of Mexico.

Second. The extent and location of such work and amount of such expenditures devolving upon the United States, and the provisions heretofore made for the same.

Third. The extent of such work and amount of such expenditures devolving on the States of New York and Illinois, and the provisions heretofore made for the same, so far as this information may be disclosed by the records or other authenticated data in the Department of War—

I have the honor to transmit herewith a report of the Board of Engineers for Rivers and Harbors dated the 21st instant.

As the character or dimensions of the waterway were not specified in the resolution, only a description of existing waterways and projects along the route described has been given.

Very respectfully,

HENRY BRECKINRIDGE,
Acting Secretary of War.

WAR DEPARTMENT,
THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
SOUTHERN BUILDING,
Washington, D. C., December 21, 1915.

From: The Board of Engineers for Rivers and Harbors.
To: The Chief of Engineers, United States Army, Washington, D. C.
Subject: Report on waterway from New York Bay to Gulf of Mexico, by way of Great Lakes, etc.

1. In compliance with your instructions of December 14, 1915, the board submits its report on the following Senate resolution:

> *Resolved,* That the Secretary of War be directed to inform the Senate:
>
> First. As to the estimated time, work, and expenditures necessary to the completion of an inland waterway beginning with New York Bay and comprising the Hudson River, the Erie Canal, the Great Lakes, the Illinois and Michigan Canal, the Hennepin Canal, the Illinois River, and the Mississippi River from St. Paul to the Gulf of Mexico.
>
> Second. The extent and location of such work and amount of such expenditures devolving upon the United States, and the provisions heretofore made for the same.
>
> Third. The extent of such work and amount of such expenditures devolving on the States of New York and Illinois, and the provisions heretofore made for the same, so far as this information may be disclosed by the records or other authenticated data in the Department of War.

2. The resolution does not specify the character or dimensions of the waterway upon which information is desired, and therefore a description of existing waterways with such references to additional improvements as seem pertinent will be given, commencing with the Hudson and concluding with the Mississippi River.

HUDSON RIVER.

The Hudson River has been under improvement by the United States since 1834. The existing project adopted by the river and harbor act of June 25, 1910 (H. Doc. No. 719, 61st Cong., 1st sess.), contemplates a channel depth of 12 feet at all stages from Waterford to Hudson, 38 miles, estimated to cost $7,530,000. It provides for a new lock and dam at Troy to replace the old State lock and dam, the lock to have a width of 45 feet, a depth on the lower miter sill of 14 feet at lowest low water, and a length between hollow quoins of 520.5 feet. Below Hudson the river has a natural depth of 25 feet or more except for a few shoals. The lock and dam are practically complete. Expenditures under the existing project to June 30, 1915, $3,046,335.24; previous expenditures by the United States, $5,466,752.32. Amount to be appropriated for completion of project, $1,900,000. If funds are made available by Congress this entire project will be completed by the fall of 1917. Prior to 1831 the State of New York expended about $1,500,000 on dikes, dredging, and other work. The present available depth at lowest low water is 9 to 10 feet.

ERIE CANAL.

The original Erie Canal, built by the State of New York from Buffalo on Lake Erie to Waterford on the Hudson with branches extending to Lake Champlain and to Oswego, was begun in 1817 and completed in 1825 at a cost of about $52,500,000. It had a navigable depth of 6 feet, later increased to 7 feet, with locks 110 by 18 by 7 feet. In 1903, by popular vote, it was decided to enlarge the canal at a cost of $101,000,000, since increased to $128,000,000. Additional large expenditures are being made by the State for terminal facilities. The navigable depth is to be 12 feet with locks 328 by 45 feet. It is expected that the entire main line of the canal will be ready for use in 1918, the Champlain branch in 1917, and a route from the Hudson to Lake Ontario, including the Oswego branch, in 1917.

SHIP CHANNEL CONNECTING THE WATERS OF THE GREAT LAKES.

There is now available a channel depth of 20 feet to 21 feet through the Great Lakes, between Buffalo, Chicago, and Duluth. The existing project, adopted by the river and harbor act of July 13, 1892 (H. Ex. Doc. No. 207, 51st Cong., 2d sess.), estimated cost, $3,340,000, has been completed at a total cost to June 30, 1915, of $3,357,529.11. This work involved dredging and the removal of shoals and did not include the locks in the St. Marys River or certain work in the Detroit and St. Clair Rivers as indicated below.

DETROIT RIVER.

The existing project, adopted by the river and harbor acts of June 13, 1902, March 3, 1905, and June 25, 1910 (H. Doc. 712, 56th Cong., 1st sess.; H. Doc. 40, 58th Cong., 3d sess.), provides for channel depths of 21 and 22 feet, at a total estimated cost of $11,360,950. The project is practically complete, the cost to June 30, 1915, having been $10,337,746.44. Total expenditures on all projects, $11,892,246.44.

ST. CLAIR RIVER CANAL.

The existing project, adopted by the river and harbor acts of July 13, 1892, and June 13, 1902 (H. Doc. 234, 56th Cong., 2d sess.), was completed in 1906. It provides for a channel depth of 20 feet. Total expenditures to June 30, 1915, $1,288,891.03 for improvement and $227,471.58 for operating and care.

CHICAGO RIVER.

The Chicago River has been under improvement by the United States since 1896. The existing project provides for a depth of 21 feet in the main river and to Ashland Avenue on the West Fork of the South Branch; to the Chicago Junction Railway bridges across the two arms of South Fork; and to Belmont Avenue on the North Branch. Authorities: Act of March 3, 1899 (H. Doc. 95, 56th Cong., 1st sess.); act of March 2, 1907. Project completed. Expenditures under present project, $636,259.11, and on all projects to June 30, 1915, $1,701,607.53. This waterway connects with the Chicago Drainage or Sanitary Canal.

CHICAGO DRAINAGE CANAL.

This waterway was constructed for the disposal of sewage under authority of an act of the Illinois Legislature of May 29, 1889. It extends from the South Branch of the Chicago River at Robey Street to Lockport, a distance of about 32 miles. It has a depth of about 22 feet and a width of not less than 160 feet. It was formally opened January 2, 1900, and is reported to have cost up to 1908 about $60,000,000.

ILLINOIS AND MICHIGAN CANAL.

The Illinois and Michigan Canal was constructed by the State of Illinois, assisted by Federal grants. It begins in the Chicago River, 6 miles from Lake Michigan, and extends to La Salle, a distance of about 96 miles. It was completed in 1848, at a cost of about $7,357,000. The locks are 105 by 18 by 6 feet. The canal has been allowed to deteriorate and now has a controlling depth of only about 4 or 4½ feet.

ILLINOIS AND MISSISSIPPI CANAL.

The object of this improvement is to furnish a link in a navigable waterway from Lake Michigan to the Mississippi River at the mouth of Rock River, Ill. The canal proceeds from the Illinois River, 1¾ miles above the town of Hennepin, Ill., via Bureau Creek Valley and over the summit to Rock River at the mouth of Green River; thence by slack water in the Rock River and a canal around the rapids at Milan to the Mississippi River, at the mouth of Rock River. Work was begun in 1892, and the canal was opened to through navigation in 1907. The canal is 7 feet deep, with locks of 150 feet available length and 35 feet width. It has a navigable feeder 29 miles in length from Rock Falls on Rock River. There has been expended on the work to June 30, 1915, $7,598,460.14.

WATERWAY CONNECTING DRAINAGE CANAL WITH ILLINOIS RIVER.

With a view to improving the Illinois River above Utica, the General Assembly of the State of Illinois passed an act approved May 27, 1915, providing for an 8-foot barge canal to be known as the Illinois Waterway, to extend from the end of the Chicago Drainage Canal at Lockport to Utica by way of the Illinois River and a portion of the old Illinois and Michigan Canal. The act provides for a bond issue of $5,000,000 for carrying on the work. The plans of construction are now before the War Department for consideration, with a view to securing necessary Federal approval.

ILLINOIS RIVER.

The Illinois River is under improvement both by the United States and by the State of Illinois. The existing project extends from La Salle, the present head of navigation, to the mouth at Grafton, 223 miles, divided into two reaches. (1) Mouth to Copperas Creek, 137 miles. Project adopted by the river and harbor act of June 14, 1880, contemplates improvement to a 7-foot depth at low water by dredging and by the construction of a lock and dam at Kampsville, 31 miles above the mouth, and another at La Grange, 79 miles above the mouth. Each lock is 350 feet long, 75 feet wide, with 7 feet depth on the sills, estimated to cost $1,695,620.14. Improvement practically completed. Total expenditures on all projects to June 30, 1915, $2,246,432.33. (2) Copperas Creek to La Salle, 86 miles. Improved by the State of Illinois and by the United States. The State constructed a lock and dam at the lower end of this section, 137 miles above the mouth and another at Henry, 196 miles above the mouth, the locks being 350 feet long, 75 feet wide, and 7 feet on the sills. The State operates these locks and imposes charges for their use. The operations by the United States consist of dredging and the removal of snags. Expenditures by the United States to June 30, 1915, have been $45,602.68. The locks and dams constructed by the State during the period 1867–1875 are reported to have cost $747,747, after the United States had expended $62,359 on foundation work. All locks and dams have been completed and about 57 per cent of the dredging to obtain a depth of 7 feet. The minimum depth available June 30, 1915, was 4½ feet at low water. A report published in House Document No. 762, Sixty-third Congress, second session, now before Congress, presents with favorable recommendation a plan for the improvement of the Illinois River from Utica to the mouth, and of the Mississippi River from the mouth of the Illinois River to St. Louis, Mo., providing for a navigable channel 8 feet in depth, at an estimated cost of $1,050,000 for the Illinois and $3,710,000 for the Mississippi, a total of $4,760,000. The work involved consists in alterations of the existing locks and dams and dredging in the Illinois River, and the construction of wing dams, shore protection, and rock excavation in the Mississippi. This improvement would connect with the present project for an 8-foot depth in the Mississippi River from St. Louis to the mouth of the Ohio, which depth is now available and is being maintained. Below the mouth of the Ohio a depth of 9 feet or more is being maintained by dredging.

MISSISSIPPI RIVER BETWEEN MISSOURI RIVER AND MINNEAPOLIS, MINN.

This section of the Mississippi River has been under improvement by the United States since 1878. The present project, adopted by the river and harbor act of March 2, 1907 (House Doc. No. 341, 59th Cong., 2d sess.), provides for a channel 6 feet in depth, at a total estimated cost of $20,000,000, with a view to completion in 12 years. Total expenditures on this project to June 30, 1915, were $7,271,163.26. Amount expended on all projects $19,560,128.66. About 32 per cent of the existing project is completed. Estimated amount required for completion of project, $11,700,000. The maximum draft that can be carried at extreme low water is 4 feet. The total length of this section is 664 miles, the distance from the Illinois River to the Missouri being only 23 miles.

MISSISSIPPI RIVER BETWEEN THE OHIO AND THE MISSOURI RIVERS.

This section of the Mississippi River has been under improvement since 1872. The existing project, originally submitted in 1881, with several subsequent modifications and interruptions, and adopted by the river and harbor act of June 25, 1910 (House Doc. No. 50, 61st Cong., 1st sess., and House Doc. No. 168, 58th Cong., 2d sess.), provides for a low-water channel depth of 8 feet from the mouth of the Ohio to St. Louis and 6 feet from St. Louis to the mouth of the Missouri River, to be completed within 12 years, at an estimated cost of $21,000,000. The total expenditures under the present project to June 30, 1915, were $13,939,554.48. The project is about 34 per cent completed. Amount expended on all projects to June 30, 1915, $16,834,554.48. Amount required for completion of existing project, $16,700,000. The project depths have been available during the past year.

MISSISSIPPI RIVER, MOUTH OF THE OHIO TO THE HEAD OF PASSES, NEAR THE GULF OF MEXICO.

This section of the Mississippi River has been under improvement by the Mississippi River Commission since 1880. The present project is to maintain a channel not less than 9 feet deep and 250 feet wide from the mouth of the Ohio to the Head of Passes, near the Gulf of Mexico, by open-channel work and by dredging; to confine the river to a permanent position, as far as practicable, by bank revetment and the construction of levees below Cape Girardeau, Mo.; to regulate the river and prevent overflow; to build such levees between Rock Island and Cape Girardeau, Mo., in aid of navigation as may be found necessary or desirable. Acts of Congress approved June 28, 1879; June 3, 1896; September 19, 1890; March 3, 1905; June 4, 1906; March 4, 1913. There is now available, with few exceptions, a good navigable channel 9 feet or more in depth and 250 feet or more in width below Cario, at the mouth of the Ohio, for a distance of 833 miles, and a depth of 30 feet or more for the remaining distance of 240 miles to the Gulf of Mexico. The total expenditures to June 30, 1914, have been about $76,000,000.

SOUTHWEST PASS, MISSISSIPPI RIVER.

The existing project, adopted by the river and harbor act of June 13, 1902, provides for a channel 1,000 feet wide and 35 feet deep at mean low water, at an estimated cost of $6,000,000, and $150,000 per annum for maintenance, including dredging, the construction of jetties and auxiliary works. (House Doc. No. 329, 56th Cong., 1st sess.) The jetties are considered as completed, but considerable dredging remains to be done. The available depth is 28 feet. Total expenditures to June 30, 1915, $8,568,888.34.

SOUTH PASS, MISSISSIPPI RIVER.

The existing project was adopted by the river and harbor act of March 3, 1875, authorizing James B. Eads and associates to construct such jetties, etc., as are necessary to secure and permanently maintain a channel between the South Pass of the Mississippi River and the Gulf of Mexico with a depth of 26 feet for a width of 200 feet and a central depth of 30 feet. Work of construction and maintenance was continued under this contract until January 28, 1901, when it was terminated. The work was taken over by the United States and has been maintained under a project adopted by the river and harbor act of June 6, 1900. The available depth June 30, 1915, was 30½ feet. Amount expended to June 30, 1915, including $8,000,000 paid under the Eads contract, $9,739,341.38.

SUMMARY.

Summing up the foregoing: There is now a navigable waterway following the route described in the resolution from New York Bay to the Gulf of Mexico, limited in depth at present to 7 feet in the old Erie Canal, soon to be increased to 12 feet at the expense of the State of New York, and limited in the old Illinois & Michigan Canal to about 4 feet at present, and to 7 feet in the Illinois River. It has been reported to Congress, in House Document No. 762, Sixty-third Congress, second session, that a depth of 8 feet is the most advisable depth for a waterway connecting Lake Michigan with the Mississippi River. This depth will be available, with the opening of the new Erie Canal, from the Hudson to Lockport, Ill., and is now available from St. Louis to the Gulf. The State of Illinois proposes to provide this depth from Lockport to Utica under its bond issue of $5,000,000. This would leave only the section from Utica to St. Louis with less depth than 8 feet. As stated above, the estimate for this work now before Congress is $4,760,000, which work could be completed, depending upon the rate of appropriations, in from three to five years from commencement.

For the board.

W. M. Black,
Colonel, Corps of Engineers.
Senior Member of the Board.

64TH CONGRESS, 1st Session. } SENATE. { DOCUMENT No. 231.

NAVAL POLICY WITH PRESENT REQUIREMENTS.

JANUARY 5, 1916.—Ordered to be printed.

Mr. LODGE submitted the following

REPORT OF GEORGE DEWEY, PRESIDENT OF THE GENERAL BOARD OF THE DEPARTMENT OF THE NAVY, MADE TO THE SECRETARY OF THE NAVY, DATED JULY 30, 1915.

G. B. No. 420-2.

DEPARTMENT OF THE NAVY,
GENERAL BOARD,
Washington, July 30, 1915.

CONFIDENTIAL:]
From: President, General Board.
To: Secretary of the Navy.
Subject: Naval policy with present requirements.

In compliance with the oral order of the Secretary of the Navy to express its opinion at the earliest practicable date as to a policy which should govern the development of the Navy and a building program, the General Board reports as follows:

POLICY.

The Navy of the United States should ultimately be equal to the most powerful maintained by any other nation of the world. It should be gradually increased to this point by such a rate of development, year by year, as may be permitted by the facilities of the country, but the limit above defined should be attained not later than 1925.

2. In pursuance of this policy and having in mind the present facilities of this country, the board is of the opinion that the following addition to the Naval Establishment should be authorized this year and recommends the same for your consideration; this addition is believed by the board to be within and practically at the limit of the facilities at present existing:

Battle cruisers	4	Auxiliaries:	
Dreadnoughts	4	Destroyer tender	1
Scouts	6	Fleet submarine tenders	2
Coast submarines	30	Fuel oil ships	4
Fleet submarines	7	Supply ship	1
Destroyers	28	Transport	1
Gunboats	6	Hospital ship	1
		Repair ship	1

Air craft service (lump appropriation) $5,000,000

PERSONNEL.

Eleven thousand men. This number will provide for the needs of the present ships of the Navy, including those nearing completion; but it must be borne in mind that the personnel, commissioned, warrant, and enlisted will have to be further increased as the new construction progresses.

Increased facilities for the navy yards and shore establishments generally, such as dry docks, berthing spaces, building slips, structural shops, cranes for handling heavy weights, shop machinery, ammunition, and other storage facilities, civil personnel, etc.

George Dewey

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64TH CONGRESS, 1st Session. } SENATE. { DOCUMENT No. 232.

IMPERIAL VALLEY, CAL., CONSTRUCTION WORKS FOR PROTECTING LANDS AND PROPERTY ALONG COLORADO RIVER.

LETTER

FROM

THE SECRETARY OF THE INTERIOR,

TRANSMITTING

REPORT OF THE CONSULTING ENGINEER RELATIVE TO PROTECTING LANDS AND PROPERTY IN THE IMPERIAL VALLEY AND ELSEWHERE ALONG THE COLORADO RIVER WITHIN THE UNITED STATES.

JANUARY 5, 1916.—Referred to the Committee on Commerce and ordered to be printed.

DEPARTMENT OF THE INTERIOR,
Washington, December 30, 1915.

SIR: Construction works for protecting lands and property in the Imperial Valley, Cal., and elsewhere along the Colorado River, within the limits of the United States, in continuation of the work in that respect performed in 1910–11 and 1914, under the joint resolution of June 25, 1910 (36 Stat., 883), were recommended in a letter to the Secretary of the Treasury, dated January 5, 1915 (H. Doc. 1476, 63d Cong., 3d sess.), and an estimate therefor in the sum of $250,000 was submitted. Thereafter, in the sundry civil act approved March 3, 1915 (38 Stat., 861), provision was made, among other things:

> For protecting lands and property in the Imperial Valley and elsewhere along the Colorado River, within the limits of the United States, against injury or destruction by reason of the changes in the channels of the Colorado River, and the Secretary of the Interior is authorized to expend any portion of such money within the limits of the Republic of Mexico as he may deem proper in accordance with such agreements for the purpose as may be made with the Republic of Mexico, $100,000, which sum shall be available for expenditure as soon as there shall have been paid into the Treasury, by contributions from the Imperial Valley irrigation district, an equivalent amount to the credit of the Secretary of the Interior to constitute, with the amount hereby appropriated, the total sum of $200,000, to be expended by him for the purposes herein described.

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Subsequently, Gen. William L. Marshall, consulting engineer to the Secretary of the Interior, upon the proposed plan for the protection of the lands and property in the Imperial Valley, Cal., against overflows of the Colorado River, was placed in charge of the work provided for by the statute; and there is herewith transmitted for your consideration a copy of his report in the premises, dated August 1, 1915.

Respectfully,

FRANKLIN K. LANE.

The PRESIDENT OF THE SENATE.

(The report, which is quite voluminous, and of which there is but one copy, has been forwarded to the Speaker of the House of Representatives by letter of even date.)

O

64TH CONGRESS }
1st Session }

SENATE

{ DOCUMENT
{ No. 233

MINING AND METALLURGICAL SOCIETY OF AMERICA

MEETING

OF THE

MINING AND METALLURGICAL SOCIETY OF AMERICA

IN COLLABORATION WITH

THE AMERICAN MINING CONGRESS, THE AMERICAN INSTITUTE OF MINING ENGINEERS, THE IDAHO MINING ASSOCIATION, THE MONTANA SOCIETY OF ENGINEERS, THE CALIFORNIA METAL PRODUCERS' ASSOCIATION, THE SPOKANE MINING MEN'S CLUB, THE NEVADA MINE OPERATORS' ASSOCIATION, THE COLORADO SCIENTIFIC SOCIETY, WITH REPRESENTATIVES FROM SEVERAL CHAMBERS OF COMMERCE, AND MANY OPERATING MINES

Auditorium of the Smithsonian Institution
Washington, D. C. - . December 16, 1915

PRESENTED BY MR. SMOOT

JANUARY 6, 1916.—Referred to the Committee on Printing

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

REPORTED BY MR. SMOOT.

IN THE SENATE OF THE UNITED STATES,
January 7, 1916.

Resolved, That the manuscript submitted by the Senator from Utah (Mr. SMOOT) on January sixth, nineteen hundred and sixteen, entitled "Synopsis of conference of the Mining and Metallurgical Society of America, with various mining organizations, December sixteenth, nineteen hundred and fifteen," be printed as a Senate document, and that ten thousand additional copies be printed for the use of the Senate Document Room.

Attest:

JAMES M. BAKER, *Secretary.*

MOTION BY MR. SMOOT.

IN THE SENATE OF THE UNITED STATES,
January 19, 1916.

Ordered, That the illustrations accompanying Senate Document No. 233, Sixty-fourth Congress, first session, entitled "Mining and Metallurgical Society of America," be printed with said document.

Attest:

JAMES M. BAKER, *Secretary.*

PROGRAM.

FIRST SESSION—10 A. M.

Carl Scholz, president of the American Mining Congress, in the chair.

Organization.

Appointment of committees.

Address by Edmund B. Kirby, E. M.

Address by Hon. Franklin K. Lane, Secretary of the Interior.

Address by Hon. Edward T. Taylor, Representative from Colorado.

SECOND SESSION—2.30 P. M.

William L. Saunders, president of the American Institute of Mining Engineers, in the chair.

Address by Hon. Reed Smooth, Senator from Utah.

Address by Dr. George O. Smith, director United States Geological Survey.

Address by J. Parke Channing, E. M.

Report of committees.

Discussion and adoption of resolutions.

THIRD SESSION—8.30 P. M.

W. R. Ingalls, president of the Mining and Metallurgical Society of America, in the chair.

Formal addresses in support of resolutions by Horace V. Winchell, E. M.; Hon. C. S. Thomas, Senator from Colorado; Hon. T. J. Walsh, Senator from Montana.

FOREWORD.

Earlier bulletins have stated in detail the object of holding a meeting of the Mining and Metallurgical Society in Washington on December 16, 1915. They also noted, from time to time, the preparations that were being made for that meeting, and for such information the reader is referred to the earlier bulletins of this volume.

Delegates to the meeting began to gather on the 15th, and by 10 o'clock on the morning of the 16th nearly every State containing Government land had one or more representatives ready to join in the discussion of the subject under consideration.

While by far the larger portion of those in attendance registered from eastern cities, it must be borne in mind that they were nearly all engineers whose activities are centered in Western States, hence it may be said that the gathering was one of representative western mining men brought together by a society whose main office happened to be in the East.

The gathering was not as large as those responsible for it had hoped. Many who had signified their intention of being present had found at the last moment that it was impossible for them to do so. This is not strange, for it is a fact that those of us who are most interested in securing changes in the United States land laws are also creatures of circumstance and are subject to immediate and unexpected calls from all parts of the country.

There is a class of men as deeply interested as the engineer, if not more so, in securing these changes—the prospector or small operator, the men who work but have little time or means for attending such a convention, regardless of their interest. These were conspicuous by their absence; but several hundred letters have been received by the secretary from such men giving their earnest support to the movement and regretting their inability to attend. These letters, and many more received by the committee on mining law, show beyond doubt the earnestness of the undertaking, and have been a strong support to those who have been able to attend and address the convention, even though the actual number present was small.

The addresses which are printed in this bulletin form a symposium on the past and present condition of our mining law, such as has never been gathered into such concise form before and which could have been gathered in no other way.

The secretary voices the opinion of many of the members of this society in saying that the work was worth the doing; it was well done and will surely bear fruit in due time.

When success follows this effort, as it surely will, the credit will not fall to any one society or group of men, but will come because of united and harmonious effort of every organization represented.

Above all, ample credit must be given to the officials in Washington who have given freely of their time and have afforded facilities for furthering the interest of the convention, without which little or nothing could have been accomplished.

The President of the United States has shown his interest; the Department of the Interior has not only shown interest but has assisted in every way possible to facilitate the objects of the meeting. Practically every Senator from the public-land States and nearly all the Representatives from those States were present at one or more sessions of the convention, or indicated by letter their desire to further the objects of the meeting.

Our work is well begun. A permanent committee of mining men is being formed, representing all of the interested metal-mining associations and operators, to carry on the work from this point and to direct our further efforts toward the desired end.

PROCEEDINGS OF THE MINING AND METALLURGICAL SOCIETY OF AMERICA.

FORENOON SESSION.

The meeting was called to order by Mr. W. R. Ingalls, president of the Mining and Metallurgical Society of America, at 10 o'clock.

Mr. W. R. INGALLS. Gentlemen, we have come together here as a meeting of mining men at the invitation of and under the auspices of the Mining and Metallurgical Society of America, an organization which for many years has exerted earnest efforts in urging upon Congress the necessity for a revision of the mining-land laws of the United States. It was not desired, however, to have a meeting of the Mining and Metallurgical Society alone, but rather a general meeting of mining men, and consequently everybody interested in mining was invited to participate. This meeting is, therefore, being held in collaboration with the American Institute of Mining Engineers, the American Mining Congress, the Idaho State Mining Association, the Montana Society of Engineers, the California Metal Producers' Association, the Spokane Mining Men's Club, the Nevada Mine Operators' Association, and the Colorado Scientific Society, together with representatives from several chambers of commerce and many operating mines. Through the courteous cooperation of Mr. Manning, Director of the United States Bureau of Mines, every mine operator in the United States was invited to attend this meeting. The attendance here this morning shows that it is a meeting of broad scope, as was planned.

The purpose of this meeting is to urge upon Congress the earnest wish of the mining industry that the archaic mining laws of the United States be revised; that they be revised in whole; and that a commission be promptly authorized for this purpose. In this program, the mining societies, the mining press, and the mining operators of the country have united. A remarkable unanimity of opinion in favor of it has been expressed.

The Mining and Metallurgical Society of America in its long consideration of this subject appointed a committee, whereof Mr. H. V. Winchell was chairman, to make a study of it. The report of Mr. Winchell's committee is one of the most scholarly and exhaustive that has ever been made. This committee formulated its conclusions in a series of recommendations, which were put before the members of the Mining and Metallurgical Society for adoption as resolutions by letter ballot. The procedure was deliberate, occupying a year or more. The fundamental recommendations were adopted by the membership by practically unanimous vote. On others of less fundamental character the vote was more evenly divided. The council of the society decided that it would advocate only those resolutions upon which the vote was substantially unanimous, and so stated in issusing the call for this meeting. The resolutions then stated were as follows:

I. The mining law should be revised not piecemeal, but thoroughly, so as to coordinate and harmonize its various provisions.

II. A statute of limitations should establish a reasonable term of years beyond which placer patents shall be immune from attack on the ground of fraud.

III. Full privilege of appeal to some competent court of law should be provided for in all cases of contests between rival claimants or between a locator and the Government.

IV. Notice of mining locations should be so recorded as to give the fullest possible public notice.

V. The apex law should be abolished.

VI. Existing titles should be reaffirmed and fully recognized and no effort should be made to create retroactive legislation.

VII. For the purpose of giving the fullest consideration to the needs of every branch of the mining industry and every section of the country, it is desirable that a Government commission be created by act of Congress, whose duty it shall be to investigate by every proper means the questions and interests here referred to and to make recommendations as a basis for the proposed mining law revision.

These resolutions have been adopted in full by several of the State mining societies, including the Montana Society of Engineers and the Utah Chapter of the American Mining Congress. The American Mining Congress as a national organization has expressed itself in substantially the same way. The American Institute of Mining Engineers has also adopted the main principles that are advocated. After the issuance of its first announcement the council of the Mining and Metallurgical Society decided that it would offer at this meeting only the first and last of these resolutions, considering that they express the main purpose, namely, the statement of the opinion that the mining laws should be revised in whole, not merely piecemeal, and that a commission should be appointed to recommend to Congress a new, properly codified law. It was considered incompatible with the latter purpose to state in other resolutions what it was expected that the desired commission should do. The Mining and Metallurgical Society of America, as an organization, will therefore offer only the two basic resolutions.

For conducting this meeting, which is not a meeting of any one society, it is necessary to have certain rules. The rules drawn up by the council of the Mining and Metallurgical Society of America, which are designed to be as broad and as simple as possible, and are understood to be accepted by this meeting, are as follows:

The meeting to comprise three sessions, the first beginning at 10 a. m., the second at 2 p. m., and the third at 8.30 p. m.

The meeting to be organized with the president of the Mining and Metallurgical Society in the chair. The presiding officers in the several sessions to be the presidents of the Mining and Metallurgical Society of America, the American Institute of Mining Engineers, and the American Mining Congress, or representatives of those organizations.

A committee on credentials, three members, to be named by the Mining and Metallurgical Society of America.

The several sessions to be open to all persons interested in the mining industry, but the right of voting to be limited to accredited delegates and other persons especially invited.

Credentials to be: (1) Membership in the societies invited. (2) Representatives, one each, of chambers of commerce especially invited. (3) Representatives, one each, of operating mines in the United States, providing that any such mine have no representation through membership in a society or otherwise. Representation in all cases to be limited to citizens of the United States. Credentials to be passed upon by the committee on credentials, whose decision will be final.

A committee on rules, three members, to be appointed by the chairman.

A committee on resolutions, five members, to be appointed by the chairman.

All resolutions to be submitted to the committee on resolutions.

The committee on rules to have the right to make provisions limiting and concluding debates, if necessary.

The functions of the committee on rules not having been defined, a resolution prescribing them will be in order.

It was moved by Mr. Stone, of New York, that the committee on rules be given power to prescribe the scope that discussions should take at this meeting and that motions referring any questions to the committee on rules have precedence over any other motion. (The motion was duly seconded and carried.)

The chairman next announced the membership of three committees, as follows:

Committee on credentials.—J. F. Callbreath, Washington; George E. Collins, Denver; George C. Stare, New York.

Committee on rules.—J. Parke Channing, New York; Seeley W. Mudd, Los Angeles; Frank E. Ross, Spokane.

Committee on resolutions.—Horace V. Winchell, Minneapolis; E. B. Kirby, St. Louis; Hennen Jennings, Washington; Walter Douglas, Douglas, Ariz.; John G. Kirchen, Tonopah, Nev.

Mr. INGALLS. I will now ask Mr. Carl Scholz, president of the American Mining Congress, to take the chair, and I have great pleasure in introducing Mr. Scholz to you.

Mr. SCHOLZ. In accepting the honor of presiding at this meeting I wish you to bear in mind that this honor has fallen to me only because I happen to be the presiding officer of the American Mining Congress. I shall not take your time by making an address, but will call on Mr. Kirby, who is chairman of the mining law revision committee of the American Mining Congress, to give us a discussion of the work he and his committee have had in hand for quite a long time.

EDMUND B. KIRBY. The subject that has brought us together here is not new. In the dim recesses of the past, far beyond the first recorded history, a large portion of the articles used by mankind were taken from beneath the surface of the earth. Men sluiced gold gravel and dug ore, and milled and smelted and forged, and they built up mining property rights with elaborate systems of law to define and protect them. With the beginning of history, the art of mining, with all of its accompaniments, including its laws, appears fully developed and well abreast of the other basic industries, agriculture, transportation, and manufacture.

When Jason and his Argonauts sailed across the Euxine Sea and stole the fleece riffles heavy with gold from the sluice boxes of the Colchians, he found himself up against organized industry and laws, with men and Winchesters enough to back them, which made it necessary to accelerate his departure and to prepare an account for the press at home, which was so interesting and dramatic that no questions were ever asked. As records become more complete, we get glimpses of the horrors of the slave-worked mines in Egypt and other despotic nations of antiquity, of the leasing system of the Republic of Greece, with its square claims on the flat veins of Laurium, of Demosthenes fighting mining lawsuits. Carthage appears, drawing from her rich mining camps much of the wealth she used in fighting the Romans, and so keenly alive to the merits of the prospector that to the one who discovered a new district she gave wealth and a title of nobility. The conquests of Rome appear to have been stimulated largely by the desire to seize the great mining districts of other countries and those of Asia Minor, Greece, Egypt, Gaul, Britain, and Spain, as they passed under Roman control, seemed to have influenced more or less the form of the mining system which appears in the Roman civil law.

From the fall of Rome to the Middle Ages, little is known of mining customs or laws, but then, in Germany, appeared fully developed systems, including the right of discovery and the apex right, while much litigation is noted upon the ancient question as to the right of a drainage tunnel enterprise to collect tribute from the neighboring claims drained. From this time on an increasing amount of informaation has been preserved. Spain, beyond all comparison the greatest mining nation of history, and for a long period the greatest of nations, seems to have repeatedly revised and systematized the results of her practical experience during thousands of years. Her great and culminating effort in this direction was the famous revision, in 1783, of the mining laws of New Spain.

Wherever there are records of the mining industry, there seem to have been periodical efforts to revise the customs and laws and to adapt them to the latest conditions present. The problems have always been much the same, whether presented to small district assemblies of miners in remote regions of the world, or to those who took part in epoch-making changes, such as the New Spain revision of 1783, the mining district laws of California, the present mining code of Mexico, the American law of 1872, and the present mining systems of the Australasian colonies.

Through all the confused records of mining customs and laws in the past, certain facts stand out clearly. First among these is the underlying conviction, which seems to have been unanimous among all classes outside of the miners, that those who worked or operated mines were created by a beneficent providence for the express purpose of being plundered. The main question always seems to have been how much would the capital and labor engaged in mining stand without being killed off and who was to get most of the plunder.

Hence mining customs and laws have been mainly the result not of steadily developing principles, but of incessant fighting. Mining codes therefore vary greatly, some having been beneficial and others disastrous to the industry. Mr. H. C. Hoover, in calling attention to some of these facts, points out that the contestants were usually four in number: The political head, such as the King, prince, or bishop, who desired mining wealth for his personal use; the State or community in general, which wanted it for revenue; the landowner; and the miner (which term, of course, included both operators and workmen). All that saved the miner from extinction was the fact that without his skill no one could get anything. With relinquishment of the King's claims, the contest has become triangular, while the State now bases its claims upon logic instead of power, so that the main opponent of the operator at present is the landowner, who still exacts his royalty of 12 to 30 per cent of the gross product.

Fighting over profits has naturally interfered with a proper consideration of what would be best for the welfare of the industry. The mining communities have always recognized more or less clearly what was necessary, but they have generally been under the power of others and have been forced again and again to submit to policies which have brought the industry to a standstill. Much of the bad legislation has been caused by the inability of well meaning but non-mining men to understand the technical peculiarities of ore deposits and mining methods. It seems, for instance, to have been almost as hard to explain to Napoleon Bonaparte as to an average American lawyer the reasons why ordinary land tenure is disastrous when applied to mineral land.

Notwithstanding the confusion introduced by the desperate class struggles of the past, certain underlying facts have been made apparent:

(1) Mining is a very sensitive industry, easily destroyed, but wonderfully responsive to just and wise legislation.

(2) The laws best for the industry have been those evolved by the miners, whenever they have been free to work out their ideas.

(3) Ordinary land tenure kills the mining industry in most kinds of deposits and restricts it in all cases.

(4) It is not to the interest of the community to have ore deposits held undiscovered or unworked.

(5) The practical problem has always been the same—how to induce capital and labor to undertake the risks of mining; how to prevent the idle holding of deposits; how to prevent operators from tying up more ground than they need.

It is not necessary to touch here upon the long indictment against the American mining code, for others are to address you upon that subject.

Now that it is at last to be revised, it is of special interest to note how the greatest revision in history, that of 1783, was made. The procedure by which the work was accomplished was, for that Government and that time, even more remarkable than the code itself. We are told that at the command of the King of Spain the miners throughout the Spanish dominions of America elected deputies who assembled in a convention and proceeded to frame the new ordinances. That the questions at issue were hard fought may be inferred from the fact that after many months the King found it necessary to force an agreement by ordering the completion of the work within a certain time, which made the total session about ten months.

The ordinances provided for a carefully planned system of administration necessary to make them effective, and the King in adopting the code required the very men who had framed it to undertake the permanent administration of its operations. The new law was admirably adapted to the conditions of the time and has always commanded the respect and enthusiasm of mining men.

The CHAIRMAN. Mr. Kirby has, in the most interesting manner, outlined the history of mining laws, and I am sure I express the sense of this meeting in extending to him our thanks for his very instructive paper.

In this day of history making, when the names of kings and czars are commonplace, we lose sight of the fact that in our own country we have men who wield a power, perhaps, just as large as that of the kings and czars abroad. The czar to whom we especially bow is a man who needs no introduction to this meeting. We have all come in contact with him more or less, and I am pleased to say that, while I have had dealings with five or six former secretaries, there is not one for whom my admiration is so great as for the gentleman who occupies the office now. I take pleasure in introducing to you the Hon. Franklin K. Lane, Secretary of the Interior.

Secretary LANE. I understand that the best your president can say of me in presenting me to-day is that I am sort of benevolent despot. I ought to have some sympathy with mining men and mining engineers, prospectors, and operators because I lived all the early part of my life among them and grew up in an atmosphere of speculation in mines and in the development of new processes. The soil of California, in its early days, was not regarded as nearly so precious as it is to-day. I remember well the time when it was not dreamed that California should ever export 60,000 carloads of oranges a year. Then we prided ourselves upon being the great gold exporting center of the world. As a boy, I knew practically all of those men who did so much for the early development of our western country. I lived for a time in the house of a man whom most of you, perhaps, know only by name, who was, in his day, a very important man in our part of the country and had to do with much of our development, Mr. Ross Brown. Flood and O'Brien, Sharon and Sutro, and the men of the Comstock, all these were familiar sights to me on my way to and from school, and I looked at the palaces that they built on Nob Hill and thought that there was a possibility for me to acquire one of those palaces if I but had the adventurous spirit.

As I look over the audience I observe a man whom I am proud to honor. This last year a very great distinction came to me of which I am prouder than of anything else I have ever had. I received the degree of LL. D. from my university, the University of California, which has done so much for the development of our mineral resources and for the stimulation of our young men in the mining profession. There is a man in this audience, the oldest living graduate of the university, of the class of 1865, who also received that degree. He represents the earliest day and I represent a later day. I refer to Mr. Gardner Williams.

I know why it is that you gentlemen are so drawn to this profession. It is not the mere making of money, although that, of course, is not overlooked. It represents that spirit of adventure which is the strongest feature of an American. I doubt if the lure of all the wealth that is to be made in Chile, or in California, or in Alaska, in China, or in South America, would have drawn out of you and your colleagues the enterprise and the imagination that you have shown. But you were drawn into this work because of your desire to discover something that man had not known before.

The prospector is not the only adventurer in mining. The man who sinks the deep shaft, who drives the long tunnel, who makes the new machine, the man who develops hydroelectric power to light and operate the mine, the man who, in the mystery of his laboratory, works out the new process, all of these are equally great adventurers seeking the novel sensation of revealing something to the world. And I hope that the department that I represent can help you in your quest. I want to see the Bureau of Mines developed into a great power, not only to emphasize to the people of the United States the magnitude of the wealth and the resources that we have in our mines, but the possibility of making the United States strong and independent and self-sufficient. [Applause.]

We want in no way to hamper the development of this industry; we wish in every way to further it. Congress has allowed the establishment of experimental stations, but it has, so far, appropriated no money for their use. Congressional procedure is somewhat slow but not at all hopeless. We will have those experimental stations. We hope to have them in the command of men of science who will be able to help you. We hope in the course of time that we may be able to develop for the mines of the West and the East just as strong a sympathy in the Government as the Government has heretofore shown for the farmer. [Applause.]

The thing that has greatly concerned me has been the confusion in the mining law. I belong to the legal profession; you are expert engineers. A more dangerous combination can not be produced. [Laughter.] If there is any combination on earth that can develop confusion and make it worse confounded, it is just that combination. And as the outgrowth of our joint enterprises, we have thrown into the law of this country a mass of intricacy which might have been avoided; the problem for us now is to get that crooked line made straight, and therefore, in advance of the publication of my report, I confide to you the fact that I have given my indorsement and made an appeal to Congress for the establishment of a commission to revise the mining laws. [Applause.]

Ten years from now, or 20 years at most, you gentlemen, I trust, will return to Washington, and you will then find a far greater interest taken in your profession, because the world will realize more fully than it does now how absolutely dependent upon the mineral products is the development of an industrial people.

The theory was, 120 years ago, that we could live well as a body of agriculturists, and that this country could be happy and maintain itself as a democracy only if we were all farmers. Some way or another, by the adventure of your predecessors, we have outgrown that idea, and the more we advance as an industrial people, the more we realize that the very foundation of our hope lies not on those things that are above ground, but on those that are under ground; and to reveal their mysteries, and all of them, will be the purpose of the department of which I am the head, if I can get the support of the mining men of the country and the sympathy of Congress. [Applause.]

The CHAIRMAN. Gentlemen, I think we owe Secretary Lane a great debt for having enlightened us as to the course that the department, of which he is the head, is going to pursue for encouraging mining and revising the mining laws.

It is eminently fit that a new bill, just introduced in Congress, should have been introduced by a man from a mining State. Colorado is one of the earlier and one of the leading mining States, and Mr. Taylor has been the father of the bill which he will now read to you, so that you may understand the subject under discussion. This bill bears directly on the subject in hand, and it has been the outgrowth of a good deal of study on Mr. Taylor's part.

ADDRESS OF HON. EDWARD THOMAS TAYLOR, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO.

Mr. TAYLOR. Mr. Chairman and gentlemen of the convention: This is an unexpected distinction which you are conferring upon me. I merely dropped in to listen a few moments, not to make any remarks. I have had the distinction of being a member of the Committee on Mines and Mining of the House of Representatives during the past five years, and it is perfectly natural that a man who went to Leadville, Colo., in the boom days 35 years ago, and has lived near there ever since, is interested in metalliferous mining.

I feel diffident in following the distinguished Secretary of the Interior, whom we all love and honor and feel that we have in him one of the really great men in this country at the head of that department. As he has well said, Congress is exceedingly slow, as everybody knows. You may remember that we western men worked for a great many years—attended conventions, I think, for 20 years—urging Congress to establish a department of mines and mining. We finally succeeded, about seven years ago, in getting a Bureau of Mines. Then about a year after that, to our utter chagrin and surprise, the legal department of the Government decided that the law creating that bureau did not apply to metalliferous mining at all. Then it took us about two years to amend the law to give the Bureau of Mines jurisdiction over metalliferous mining. During that time the bureau had devoted all of its attention to coal mining.

Then we started to get an appropriation to do something for the metalliferous miner. We got $80,000 the first year and then $100,000 the next year, and that much, I think, each year since for metalliferous mining experimentation. Then I started to get a mining experiment station in Colorado—and then several other Members put in similar bills—and finally last year we consolidated our efforts and got together and, as you know, we passed a bill authorizing the construction of 10 metalliferous mining experiment stations for scientific experimentation work in discovering processes for treating low-grade and complex and refractory ores. But the House put in a clause that not over three of those experiment stations can be established in any one year. Now, we are going to try to appropriate the money this year for the establishment of the first three. I apprehend that one of those will be in Alaska and the other two in the States somewhere. We are also trying very industriously to pass a bill for the creation of a commission, as you know, to revise, codify, and suggest amendments to the metalliferous mining laws.

I feel that there is one exceedingly unfortunate thing, and I have never understood why that should be the condition, but it is true that out of the 14 Members on the House Committee on Mines and Mining I am the only one that comes from a metalliferous mining State. The rest of them are Representatives from the coal-mining districts. None of them are from any of the public-land States, and they naturally do not have the direct personal interest that we do in this subject.

There are at least two views about this matter. One, that is held by the chairman of the Mines and Mining Committee, and he will undoubtedly speak for himself, as I have no authority to voice his sentiments, namely, that we may have to wait a good many years before we succeed in getting a commission to revise these laws. And after we get a commission appointed it will take time for them to report, and there is no telling how much or how little attention Congress will pay to their report. Dr. Foster's idea is that if you gentlemen have any well concerted and thought-out amendments to the mining laws that would meet generally with the approval of the country, that such amendments ought to be incorporated in a bill, and by the aid of the Secretary of the Interior and the Bureau of Mines and the Commissioner of the General Land Office they ought to be promptly enacted into law. I may say that the commissioner, as you know, is a mining man from Nevada, Mr. Tollman. Dr. Foster's thought is that we ought to cut the Gordian knot by just passing the necessary laws rather than by referring the matter to a commission and waiting on the interminable investigations and then in consideration of the report. But I do not believe it is possible now to frame a bill that would meet the approval of the mining men of this country. I believe we can and should have a commission. We got a favorable report from the committee last year on my bill for the codification of the mining laws. Senator Smoot also had a similar bill, as you know, in the Senate, and he passed his bill through the Senate and sent it over to the House.

The main difference between Senator Smoot's bill and my bill is that he provided that the commissioners should be paid. That is eminently proper; they ought to be paid; but the question of what ought to be and what can be is very often two entirely distinct and different things in Congress, and after consulting with Mr. Galbraith and a number of mining men, we concluded that possibly we could get a commission of high-class men that would grant their services to the country for nothing and go ahead and make this investigation, if we provided for their traveling, clerical, and other necessary expenses. We thought that possibly men who would have the inclination and the patriotism to do this work might be found by the President of the United States to carry on this work for nothing. For that reason alone I put in the bill that the commission should serve without pay. I believe now and I believed at that time that it might aid in the passage of the bill, and I do not believe I could have gotten it reported out of the Mines and Mining Committee without that provision in it, and I have for that reason the same provision again in the present bill. The present bill (H. R. 18) I introduced on the opening session of Congress on last Monday and it provides as follows:

A BILL To provide for a commission to codify and suggest amendments to the general mining laws.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the President shall appoint a commission of five members, who shall be selected because of their recognized experience in or knowledge of the mining industry and mining law, and who shall serve without compensation.

SEC. 2. That it shall be the duty of the commission so appointed to prepare for the information and use of the President and Congress a tentative code of laws providing for the location, development, and disposition of mineral lands and mining rights in the lands of the United States, including the Territory of Alaska, as in the opinion of the commission are best adapted to existing conditions and will correct defects or supply deficiencies in existing general mining laws: *Provided,* That such code shall not deal with lands containing deposits of coal, oil, gas, phosphates, or soluble potassium salts.

SEC. 3. That the commission shall hold public hearings in the principal mining centers in the western United States and Alaska; invite and receive suggestions and opinions bearing upon or relating to existing mining laws or desirable amendments thereof; and may also consider the laws and experience of other countries with respect to disposition and development of mines and minerals.

SEC. 4. That within one year after the passage of this act, at which time the said commission shall expire, it shall submit to the President full report as to its operations, conclusions, and recommendations, including in or transmitting with said report a tentative code of mineral laws, as provided in section two hereof, and as soon thereafter as may be practicable the President shall transmit the same to Congress with his recommendations.

SEC. 5. For the payment of the actual and necessary expenses of the commission including traveling expenses, and the services of a secretary and other necessary employees, the sum of $25,000, or so much thereof as may be necessary, is hereby appropriated out of any money in the Treasury not otherwise appropriated.

The Mines and Mining Committee thought that if we provided for the traveling and other necessary expenses of this commission and for the clerical expenses and for all other incidental expenses, but no salary, that it would assist in passing the bill. We know, probably very well, that the country is getting pretty tired of commissions. We have had hundreds of them. They are expensive luxuries and Congress is very loath to create any more, especially to give them carte blanche with a roving commission to go out and expend the public money. I have been trying to get actual practical results and trying to advance along the line of least resistance. I think I may refer for just a brief moment to the report which was made upon this same bill last May, and which was authorized by the Committee on Mines and Mining and which I had the distinction of reporting on behalf of that committee to the Congress. Secretary Lane's report on the bill, in part, says: "The codification of all laws relating to the location, development, and disposition of such mineral lands would also, in my opinion, be desirable. I believe that the investigations and findings by such a commission as is provided for in this bill would be of material value to Congress and have therefore to recommend that the measure be enacted." That is just the closing paragraph of his report. I will now read from my report a few sentences which contain the substance of the excellent reports of Mr. Kirby and Mr. Winchell, and the American Mining Congress and various other organizations. I think I have substantially expressed your concerted judgment in the following language:

COMMISSION TO AMEND THE GENERAL MINING LAWS.

Mr. Taylor of Colorado, from the Committee on Mines and Mining, submitted the following report:

For 25 years there has been a general dissatisfaction with the mineral-land laws of this country. The Interior Department has many times recommended changes. The American Institute of Mining Engineers, the Mining Metallurgical Society of America, and the American Mining Congress have all been for many years persistently urging a revision of our mineral-land laws. Protests from all over the West have been presented to Congress and various public gatherings annually, and a few isolated efforts have been made to secure relief; but no concerted or systematic effort has been made to revise, systematize, and bring up to date the mineral-land laws. Many able addresses have been delivered and profound papers read, and the mining public generally concede many evils, absurdities, and obsolete provisions in the mining laws; but no body of men has ever been authorized to revise or codify them, and the Interior Department, the Bureau of Mines, and the committee have deemed it best to recommend the creation of a commission, to be appointed by the President, of high-class men, of recognized experience in the mining industry and mining laws, to make a thorough and exhaustive investigation of this subject and report their conclusions to Congress.

It is believed that this commission should and will hold public hearings in the principal mining communities of the West and Alaska, and give ample opportunities for full expression by the public of their experience and the wisdom derived from years of observation.

While various individual bills have been introduced from time to time, the mining men of the country are apparently of—

"the conviction that no tinkering or patchwork revision can afford any perceptible relief. The present mining laws as a whole are hopelessly at variance with the geological realities of ore-deposit structure, and also with the practical operation of prospecting and mining. Moreover, their various parts are so interdependent that it is practically impossible to correct individual faults without revising them as a whole." (Report of Edmund B. Kirby, on Mining Law Revision, at New York meeting, February, 1914.)

The American Mining Congress at its annual session held in Spokane, Wash., on November 25, 1912, appearing at pages 80 to 81 of the report of the proceedings is the following:

"MEMORANDUM.

"The American Mining Congress, representing the mining industry of the United States and Alaska, asks that Congress shall undertake a general revision of the mineral land laws.

"IMPERFECTIONS OF THE PRESENT LAWS.

"The mineral land laws of the United States and Alaska, framed in 1872, and interwoven with a mass of supplementary State legislation, differing in every State, fail to meet the present requirements of the industry. Moreover, they have developed various evils, the injurious effects of which are steadily increasing. These have become so serious as to retard the development of mining and to create dissatisfaction and complaint everywhere.

"At every annual session of the American Mining Congress during the past 12 years the prevailing discontent with the present code has been voiced by various resolutions calling attention to its evils and asking for the correction of this or that feature of the laws relating to mineral claims located upon the public domain. Such complaints steadily increasing in volume have found expression not only in the mining congress but also in the press of the mining communities, all the mining journals, in the societies of mining engineers, and in fact through every medium available for the expression of public sentiment. They have nevertheless been without result for the reason that the mining laws are largely interdependent, and it is difficult, if not impossible, to correct one fault without straightening out the entire code. Moreover, the States affected, some of which have often attempted to make improvements, find that nothing effective can be done without the action of Congress. In short, patchwork is impossible, and a general revision is necessary.

"DIFFICULTIES OF THE WORK.

"Since the problems involved in the work are peculiar to the industry and are unusually difficult, it is evident that their satisfactory solution will require the aid of the most experienced judgment, together with a free and direct expression of views by the mining communities themselves. Among the many questions which will arise during a revision are the following, which will illustrate the nature of the work:

"SOME OF THE PROBLEMS.

"The apex law, with the uncertainties of title and litigation caused by it. The latter includes not only the conflicts caused by the extralateral right, but also those occasioned by the consequent shapes of claims and the overlapping of lines.

"The creation of a definite procedure for acquiring rights to those claims in which the mineral is not near the surface and where discovery must in consequence be long deferred.

"Tunnel locations and the uncertainties of title caused by them in neighboring claims.

"The present nonobservance of the law of discovery.

"The partial or complete nonobservance, through various expedients, of the law of assessment.

"The location of an unlimited number of claims by one individual.

"Locations by proxy.

"REASONS FOR REVISION NOW.

"A general revision now will be particularly timely because of the public interest in conservation and the new legislation now under consideration for timber, oil, phosphate, and coal lands; also power sites. To omit the 'mining code' from any program for the betterment of laws relating to natural resources would be to pass by the field where relief is most urgently needed."

Hon. Horace V. Winchell, of Minneapolis, Minn., at the New York meeting of the American Institute of Mining Engineers, last February, read a very learned and lengthy paper on the subject "Why the mining laws should be revised." A few of the reasons which he gave and elaborated upon were in substance as follows:

(1) That the present mining law was not planned for the kind of mineral deposits or mining conditions that we have to-day; that the law of 1866 and amendatory act of 1872 applied primarily to fissure veins, and has never been adapted to the other forms of deposits.

(2) That the present law discourages prospecting and discovery and development of new mines.

(3) That one of the features of the present mining law, which seems to be not only criticized, but almost universally condemned, is the "apex" or "extralateral" right, by which the miner is allowed to follow his vein beneath the surface of land owned by another. The Hon. D. W. Brunton, of Denver, former president of the institute and also president of the American Mining Congress, in his presidential address to the latter, uses the following language:

"It is a most unusual thing for a mine to find its way into the producing stage without having to fight one or more 'apex" lawsuits, and all because our legislatures in 1872 gave us the most archaic law that was ever placed on the statute books. No other nation possesses such an antiquated, absurd, and irrational mining law, which, no matter what it was intended to do, has only resulted in a continued expense and annoyance to mine owners and big fees to lawyers and experts. * * * One of the most disastrous effects of this continuous litigation is to frighten capitalists away from mining investments, because observing eastern investors have learned that the discovery of a new mine carrying rich ore is almost certain to be the beginning of the most expensive and interminable litigation."

(4) There seems to be an almost universal demand for a modification of the law that will permit of an appeal to the courts from the decisions of the land-office officials in metalliferous mining cases.

(5) A provision of the law requiring notices of mining claims to be filed with the General Land Office or some duly constituted Federal office. It is asserted that Uncle Sam has been a very careless custodian of the mining property, and

that the United States Government to-day does not possess either records or maps showing what portions of its mineral lands have been appropriated by valid mining locations.

(6) There is a wide discrepancy between the law pertaining to lode claims and placer claims. As an illustration, the law at present provides a limit to the time within which patented quartz claims may be attacked for fraud or irregularities of location, but makes no such provision for patented placer claims. Contests have been brought against placer patents 25 years after their issuance. The law should provide the same protection for placer as for lode claims.

(7) It is asserted that the present statutes are defective in permitting the location of an unlimited number of lode claims in any district and not requiring actual and useful development. Many promising mining claims, and even mining districts, have been smothered for years by this practice. Mr. Winchell also mentions many other irregularities that it would seem ought to be and would be remedied in a general mining code.

The essential features of the general mining laws of the United States were determined over 40 years ago, when the total production of mineral substances in this country did not amount to more than $300,000,000 per year. Since that time the value of the total mineral output has increased to $2,250,000,000 per year, a sevenfold increase. This growth has in part resulted from the discovery and the preservation of all existing rights, while providing for the easier development of the public mineral lands requires so much careful study that Congress can not afford to devote the necessary time required for the preliminary work. It is also necessary that the commission shall visit the principal mining districts and hear the views of the men actually engaged in the labor of the development and operation of mines, so that the law, when finally enacted, shall as completely as possible meet all the needs and desires of the mining population as a whole. The provision that the commissioners shall serve without compensation insures that the work shall be done with reasonable promptness and dispatch, and men of small means will undoubtedly be willing to serve on such a commission, since many such men have already devoted much time and effort to bring about a revision of the law.

The vital importance of this matter is not alone measured by the 2,300,000 men engaged in the mining industry and the $4,500,000 worth of products which results from their labors, but rather by its effects on the whole of our people. More than half the freight hauled by our railroads is the product of the mining industry, and of the $20,000,000,000 worth of manufactured products annually produced in this country almost the whole involves the employment of metallic mineral substances. Indeed, it may truly be said such substances perform for the commerce and industry of the Nation much the same function which the blood performs for the maintenance of the body. The committee believes that this bill will meet with the hearty approval of prospectors, miners, operators, and the people generally everywhere, and we sincerely trust that it will pass.

That is the report that we gave to the Sixty-third Congress, and we tried from May 7 to the 26th of October, 1914, to get that bill passed. On one or two occasions I thought I was going to get it considered; had it on the special calendar once or twice, but there would always be some large appropriation bill or something intervene to head it off.

I started in earlier this time and hope to push it, if possible, more vigorously. You understand there are from 30,000 to 40,000 bills introduced in each Congress. The fact that this bill (H. R. 18) was introduced within two minutes after the gavel fell does not necessarily mean that it is going to get very much start over the rest. It is only diligent pressure that brings about the passage of even the very best bills through Congress. We seldom pass more than about 2 per cent of all those 30,000 or 40,000 bills that are introduced. If you and your friends from the mining industries of this country in all of the States will correspond with your Representatives and will "press the button," as I may say, from home; if you will vigorously impress upon them the importance of the passage of this bill, we possibly can get it through. But it does require a great deal of steam and energy to pass a bill through Congress, no matter how meritorious it may be. There are possibly from 10,000 to 20,000 meritorious bills killed every Congress. It is only those that have a very great effort behind them that can get through.

I simply urge upon you that whatever you agree upon, whether you agree to appoint a committee to go up before the Committees on Mining of the Senate and House and try to get them to agree upon one bill of amendments and then put that through this Congress, or whether you rely upon the bill for the appointment of a commission and wait for some future action of Congress, whichever measure you take you must bring pressure to bear.

And remember another thing. So far as the metalliferous mining is concerned there are only 36 of us Members from all the western mining States. On the other hand Pennsylvania has 36 Members and New York has 44. If all of us from the West pull together and do our best we are only about 6 or 8 per cent of the House. The coal-mining industry is not much concerned about this codification. They are having new regulations made by the bureau all the time, but the metalliferous miner has been treated as a kind of a stepchild, a kind of an orphan out West. It is not because we are not willing enough, but we do not have the vote in Congress or the influence or power to force these matters through, and if you eastern people can bring pressure to bear on your Congressmen to help us out you will be rendering a very great service.

I want to heartily thank you for your courtesy and patience in listening to me so long. [Applause.]

The Chairman. You will agree, gentlemen, that I made no mistake when I said that Mr. Taylor was a man who had studied this subject and was a worker. The mining interests are fortunate to have such a strong advocate in Congress to push their cause, and it seems to me that every member of the various mining societies should constitute himself a recruiting officer to obtain as many volunteers as he possibly can to advance the good of the cause, and this work should not be allowed to slack.

For the purpose of comparing the bill introduced by Mr. Taylor and the one referred to as having been introduced by Senator Smoot, I am going to call on the secretary to read Mr. Smoot's bill.

A BILL (S. 52) To provide for a commission to codify and suggest amendments to the general mining laws.

Be it enacted, etc., That the President shall nominate and by and with the advice and consent of the Senate appoint a commission of three members, two of whom shall be lawyers of large experience in the practice of mining law, and one a mining engineer who shall have practical experience in the operation of mines.

Sec. 2. That it shall be the duty of the commission so appointed to prepare for the information and use of the President and Congress a tentative code of laws providing for the location, development, and disposition of mineral lands and mining rights in the lands of the United States, including the Territory of Alaska, as in the opinion of the commission are best adapted to existing conditions and will correct defects or supply deficiencies in existing general mining laws.

Sec. 3. That the commission shall hold public hearings in the principal mining centers in the western United States and Alaska, invite and receive suggestions and opinions bearing upon or relating to existing mining laws or desirable amendments thereof, and may also consider the laws and experience of other countries with respect to disposition and development of mines and minerals.

SEC. 4. That within one year after the passage of this act, at which time the said commission shall expire, it shall submit to the President a full report as to its operations, conclusions, and recommendations, including in or transmitting with said report a tentative code of mineral laws, as provided in section two hereof, and within thirty days from receipt thereof the President shall transmit the same to Congress with his recommendations.

SEC. 5. That each of said commissioners shall receive a salary of $500 per month, and for the payment thereof and of the actual and necessary expenses of the commission, including traveling expenses, the sum of $25,000, or so much thereof as may be necessary, is hereby appropriated out of any money in the Treasury not otherwise appropriated.

The CHAIRMAN. Gentlemen, now that you have heard the two bills I shall be glad to have some discussion on their respective merits, and shall be pleased, of course, to hear from anyone in the meeting.

Mr. MACBETH. On behalf of 1,100 mining men of Idaho, who are organized under an association, I desire to object to that part of the Smoot bill which leaves the codification of our laws in the hands of two eminent mining attorneys and one expert mining engineer, because we consider that in such event our last condition would be worse than our first. We desire to have that bill amended so as to permit one practical mining man to be placed on the commission instead of the two eminent mining attorneys. We do not mean to disbar both of the eminent mining attorneys; keep one of them, but give us one practical mining man and one engineer.

I believe as did the Congressman from my State, ex-Senator Hepburn, that no mining expert ever discovered a paying mine; mines have always been discovered by the prospector, and we consider that some one representing the prospector, a practical mining man, should have a place on any commission which may be appointed for the purpose of revising and codifying our laws.

Mr. CHANNING. In regard to the suggested House bill, I think it would be a proper subject for us to discuss why oil lands, phosphate lands, and similar deposits were excluded. It certainly seems to me that the necessity for determining a proper location of oil lands is of vital importance, and I fail to see why they should be eliminated.

Mr. TAYLOR. You know there is a bill pending before this Congress, which has been approved by this administration and is very near to the heart of Secretary Lane, providing for the withdrawal from entry of all coal, oil, gas, phosphates, and sodium and potassium deposits in the United States and not allowing them to be entered or patented at all hereafter. That bill, I think, is going to be pushed through at all hazards very early in this session. It was passed by the House at the last session. It proposes to put all of those substances on the Federal leasing basis. There is a very strong sentiment behind it; the conservation sentiment of the North and of the South is almost unanimously in favor of it, and, whether we like it or not in the West, and most of us do not, the fact remains that this measure is probably going to be passed. For that reason, it was deemed unnecessary to legislate upon the manner of obtaining title to those kinds of deposits, and when this bill was submitted to the Department of the Interior last year, the strongest of Secretary Lane's recommendations was that this clause should be included, eliminating consideration of coal, oil, gas, sodium, and phosphates, and confining our inquiries to the other minerals. Inasmuch as you can hardly pass a bill through Congress at any time except by unanimous consent, we thought that if we could practically agree on the mining provisions of the bill and get that through, we should advance a long way in the right direction. Then if these leasing bills are not passed we can recommend a law later to include these other subjects.

I can probably answer a great many more objections along the same line. I may say, in reply to the gentleman from Ihado, that we thought that if we specifically designated one practical miner and one lawyer and one engineer, or if we went into details of that kind, we should meet a great deal of opposition on the floor of the House. We thought better to leave the President of the United States to use his good judgment in the appointment of the men. The bill requires that they shall be practical, but let us get away from the details and have results. There was no intention to overlook anybody. We discussed that matter a great deal and talked it over with a number of men, and we thought we had adopted a plan for which we could most easily secure approval.

Mr. THOMPSON. May I ask this question: What can we gain by this commission; what information can it secure of which the country is not already in possession?

Mr. TAYLOR. That same question is in the mind of the chairman of the Mines and Mining Committee, Dr. Foster, of Illinois. He says that mining men have thrashed out this problem for 25 years, and are no further advanced now than then. Further, if you will get together and will put your recommendations into concrete language, and let him introduce them as the chairman of that committee, we will do our level best to enact them into law. He thinks this will be better than to appoint a commission, then wait a year or two, then thrash out its report in the face of opposition, and again wait indefinitely.

Public laws must be enacted one at a time. If you could agree on any plan, or devise any code of laws which you think ought to be enacted, a code which we can harmonize in form and introduce as a bill, even though it may look like patchwork, you will have accomplished something. If we were to approve a bill, knowing that the American mining profession was unanimously behind it, I believe we could pass it more easily than a bill calling for a commission.

Mr. WINCHELL. This is just the very thing we are not able to do. We can not present to Congress, nor to the Committee on Mines and Mining, any amendment or draft of a bill and state that the people engaged in mining are unanimously in favor of it, because they do not know what they want. What does a coal miner in Pennsylvania know about the apex law in Montana? What does a placer miner in Alaska or an iron miner in Minnesota know about conditions in Tonopah? They do not encounter these questions often enough in any one locality even to permit sentiment to crystallize regarding all of the defects in the mining law. Every man engaged in mining sooner or later has an apex suit. He curses it, goes through with it, pays his expenses, and takes his losses; then he says, "Please God, I will never have another one," and he retires.

Then in another section of the country, another man has the same experience; when he gets through with it he says, "Let me get out of mining," and he retires.

Four years ago I sent out a thousand letters to mining men throughout the country. I asked them for specific and direct opinions and answers on a number of questions, and I received hundreds of replies. Those replies proved to me that instead of knowing all about mining law, the average mining man knows very little about it, and can not tell what he does know. He has never gone through the whole mill, locating a claim, getting it patented, advertising for it, engaging in an apex suit, and fighting it out through the United States Supreme Court. He may have come in at some stage of development, and have had something to do with it for a short time, but then backed out again. No commission, no individual, could in less than six months correlate the different conditions, the several classes of deposits, the divergent provisions of the mining law, and prepare a logical, simple, consistent code. That is why we are asking for a commission. You can not find any two mining men who will agree on all points, nor any two mining lawyers; I have inquired a great many times, but the lawyers themselves do not know whether such and such a principle has been upheld by the United States Supreme Court, nor whether the Supreme Court is going to overrule the Court of Appeals the next time the case reaches there. It is necessary, it seems to me, to have this matter digested and considered in the light of all the information that can be obtained, and a year is none too long a time.

Mr. KELLAR, of South Dakota. I really do not know whether I have any business here or not. I am a lawyer, but I think I can escape the animadversions of my friend, Mr. Macbeth, by pleading that I am not an eminent lawyer. [Laughter.]

So far as I am personally aware of the sentiments of my community, a little Black Hills section of South Dakota, I think there is quite a widespread demand for the revision which has been suggested by the committee of this organization, and I endorse the sentiments which have just been expressed by Mr. Winchell that the only practicable and feasible method of arriving at a solution of our difficulties is by the appointment of a commission. It is utterly impracticable, utterly impossible for this organization, it seems to me, without the expenditure of a great deal of time, to draft a suitable revision or codification of the present entanglements. It also seems to me that a very satisfactory solution of the difficulties that have been suggested will be found by adopting the bill proposed by Mr. Taylor rather than that proposed by Senator Smoot; the former provides that the commission is to serve without pay, and the chances are that the adoption of that provision will eliminate the eminent lawyers. [Laughter.]

It seems to me that all of our difficulties will be settled by uniting on the provision that the commission shall serve without compensation as a test of patriotism rather than of dollars.

Mr. TAYLOR. I understand that Senator Smoot is to be with us this afternoon, and I trust that no action will be taken, as between the two bills, until we have heard from him. I am not wedded to my bill; to me it is entirely a question of results. I have discussed this with Senator Smoot a good many times, and he feels that the commission is entitled to pay. There is no doubt that the commissioners are entitled to pay; the only question is whether they can get it. The Senate would let them have it, but as to passing that provision through the House, this is another question. You know there are desperate claims on the Government at this time for everything under the sun. We have never in 50 years seen such demands as are going to be made on the Federal Treasury in this Sixty-fourth Congress. Hence, it is going to be extremely difficult to obtain any legislation that involves an expenditure, and I believe there is no more reason to expect this clause to be adopted by this Congress than two years ago.

The CHAIRMAN. On account of a previous engagement I shall have to ask the gentlemen to excuse me, and Mr. Ingalls will preside.

Mr. INGALLS (presiding). Mr. Winchell has explained in a very excellent manner the reason why the revision of mining laws ought to be undertaken by commission. I will elaborate his story a little further.

After he sent out some 4,000 letters of inquiry, as chairman of a committee of the Mining and Metallurgical Society, and after digesting the information that they elicited, Mr. Winchell and his committee drew up a set of resolutions which were offered to the members of the Mining and Metallurgical Society for action. That society did not dispose of the matter in any snap way. It was engaged in its deliberations for more than a year, and finally its action was taken by letter ballot of all the members.

In the first place, the council, in considering the questions which should be put to the members, found that there were certain suggestions on which it could not agree, and it had to offer alternatives. In the voting on these resolutions, thus offered, some of them in the form of alternatives, certain features were carried by a practically unanimous vote. One of these was the proposition that the mining law ought to be revised as a whole, to secure a properly formulated result, and not as a mere piecemeal, patchwork job. The suggestion that revision ought to be undertaken by commission was also carried unanimously. But there were other questions on which opinion was divided; one proposition might be carried by 53 per cent, another lost by 53 per cent, illustrating how impossible it would be for any individual, or small committee, to draft a modern mining law that would meet with general approval. That is why we wish Congress to authorize a commission to study this matter in the way it should be studied. I am sure the resolution to that effect, which will be introduced later, will be adopted, because it has already been adopted by the three national mining societies, and by nearly all of the State societies that we have heard from.

Now, why did the Mining and Metallurgical Society decide to withdraw certain of its resolutions which it had announced it was going to introduce at this meeting? Simply because it considered that those subjects were ones that would properly come within the scope of study of a commission, and that, by taking action on such matters to-day, this meeting would be anticipating the work of the commission which we hope that Congress will authorize.

These bills that have been introduced in the House and in the Senate show that important members of both of the legislative bodies believe, as we do, that there ought to be a commission. However, these two bills possess certain radical differences, the introduction of which crystallize the issue; at this meeting we ought therefore to discuss those differences in order to aid the committees of the Senate and of the House in their consideration of these bills.

Let me point out in a few words the essential differences. Mr. Taylor's bill provides for a commission of five members, who shall be unpaid. He provides for a revision of the code, with certain reservations. It is doubtful whether the reservations inserted in this bill will do just what is contemplated. The bill stipulates that the code shall not deal with deposits of coal, oil, gas, phosphates, or soluble potassium salts. This suggests several pertinent questions. Why not saline deposits? How about deposits of rock salt? How about borax? Are these to be exempted or not? The bill does not exempt them. I presume, however, it is the intention of the Interior Department to exempt them.

The essential points of difference in these bills, however, are that Mr. Taylor provides for a commission of five members who shall be selected because of their recognized experience in one or more of the mining industries, and they shall not be paid. Senator Smoot wants a commission of three members, two of whom shall be lawyers of large experience in the practice of mining law, and one a mining engineer, and wants them to be paid.

We ought to be able to advise Congress on these subjects, and to state what the mining industry thinks about these questions. We must begin to crystallize our action by the introduction of certain specific resolutions, and I will call upon Mr. Sharpless, secretary of the Mining and Metallurgical Society of America, to introduce the resolutions which that society intends to offer at this meeting.

Mr. SHARPLESS. The two resolutions to be presented by the Mining and Metallurgical Society are the following:

Resolved, (A) That the mining law should be revised not piecemeal, but thoroughly, so as to coordinate and harmonize its various provisions.

Resolved, (B) That for the purpose of giving the fullest consideration to the needs of every branch of the mining industry and every section of the country, it is desirable that a Government commission be created by act of Congress, whose duty it shall be to investigate by every proper means the questions and interests here referred to, and to make recommendations as a basis for the proposed mining-law revision.

The CHAIRMAN. These resolutions, having been duly seconded, according to the rules of this meeting, are now referred to the Committee on Rules.

Mr. SHARPLESS. The secretary has received a number of resolutions that have been adopted by other organizations. As they are more or less similar to those that have been read I doubt if it is necessary for me to read them all in detail.

(The following resolutions, printed here in full, were presented by Secretary Sharpless in outline only:)

AMERICAN INSTITUTE OF MINING ENGINEERS.

Resolved, That the delegates appointed to the convention of the Mining and Metallurgical Society of America in Washington December 16, 1915, be empowered to act for this institute in advocating and voting for the two following resolutions:

1. The mining law should be revised not piecemeal but thoroughly, so as to coordinate and harmonize its various provisions.

2. For the purpose of giving the fullest consideration to the need of every branch of the mining industy and every section of the country it is desirable that a Government commission be created by act of Congress, whose duty it shall be to investigate by every proper means the questions and interests here referred to and to make recommendations as a basis for the proposed mining-law revision.

AMERICAN MINING CONGRESS.

Resolved, That Congress shall undertake a general revision of the laws relating to mineral-bearing lands and mineral rights within the United States and Alaska, and such revision shall cover mineral deposits of every kind except those of coal, oil, phosphates, and salines, which have been set aside as the subjects of other and special legislation.

In view of the technical nature of the problems presented by the work it is desired to secure first the results of the knowledge and experience which exists among those who are engaged in the mining industry.

To this end the President shall, within 60 days hereafter, appoint a commission of five members, who shall be selected for their recognized knowledge and experience in the mining industry.

The commission shall consider the mining laws of this and other countries, and shall hold public hearings in the principal mining centers of the Western States and Alaska, giving full opportunity for the expression of public opinion concerning the problems before it. Its recommendations shall be presented in the form of a fully drafted mining code.

Within six months after the appointment of the commission its report shall be delivered to the President, who shall, within 30 days thereafter, transmit it to Congress with his further recommendations, if there be any.

Members of the commission shall receive per diem with expenses, and shall engage such clerical assistance as may be necessary for the work.

MONTANA SOCIETY OF ENGINEERS.

This society on November 8, 1915, officially adopted the seven resolutions of the Mining and Metallurgical Society, as printed and circulated in the supplement to Bulletin No. 87 of August, 1915. These are printed in full on page 28 of this bulletin.

UTAH CHAPTER, AMERICAN MINING CONGRESS.

Whereas experience has demonstrated conclusively that the present mining laws of the United States as written, interpreted, and construed cause conflicts, disputes, litigation, and loss; do not afford sufficient and proper encouragement and protection to those who seek to develop the mineral resources of the Nation; make it needlessly difficult to obtain and hold titles to mineral lands and to obtain capital for their development; and are inimical to the best interests of the industry in other ways; and

Whereas previous efforts to obtain the legislative action necessary to correct inadequacies and evils of the present laws have failed of result chiefly because the representatives of the mining industry have not presented its legislative needs with sufficient unanimity, particularity, and vigor to the Congress of the United States and the Executive and administrative officers of the National Government; and

Whereas the subject has been thoroughly and intelligently investigated by a capable committee of the Mining and Metallurgical Society of America, which has adopted the following program recommended by said committee (here follows the seven resolutions of the Mining and Metallurgical Society of America as originally proposed); and

Whereas the said Mining and Metallurgical Society of America has called a general convention of representatives of the mining industry of the United States to meet at Washington, D. C., December 16, 1915, there to consider and act on the said program and to devise ways and means most effectively to present the desired legislative action to the Congress of the United States; and

Whereas it appears vitally important that all mining interests join in support of the movement hereinbefore set out: Therefore be it

Resolved (1), That the movement to obtain revision of the United States mining laws be indorsed and the program proposed therefor by the Mining and

Metallurgical Society of America be indorsed as to its general plan, subject to such changes as may hereafter be proposed or favored by this chapter.

Resolved (2), That the executive committee of this chapter be directed and empowered to take such steps as may in its judgment seem necessary and proper to have the mining interests of Utah represented at this convention.

Resolved (3), That the Senators and Representatives of Utah in the Congress of the United States, the governor of Utah, and the commercial and industrial bodies of the State be urged to give their fullest support to the efforts made to obain revision of the mining laws of the United States.

PIOCHE COMMERCIAL CLUB.

Whereas the Pioche Commercial Club is the only commercial organization in southeastern Nevada representing a large and productive mineral area containing gold, silver, copper, lead, zinc, tungsten, and platinum; and

Whereas no one realizes more forcibly the necessity for revision in our present archaic mining law than a man who is continually brought into contact with its vagaries and inconsistencies; and

Whereas the Mining and Metallurgical Society of America is about to meet in convention, with the object of impressing upon Congress the necessity of revision;

Resolved, That we most earnestly urge all who are interested in mines or mining to exert themselves to their utmost to secure the passage of a bill during the forthcoming session of Congress providing for a competent commission to investigate the matter thoroughly, and draft a modern set of laws, conducive not only to the promotion of mining but also to the adequate protection of mining rights; and

Resolved, That a copy of these resolutions be sent to the Mining and Metallurgical Society of America, to be read at their meeting at Washington, and that copies be also sent to our Senators, Hon. Francis G. Newlands and Hon. Key Pittman, and to our Representative, Hon. E. E. Roberts.

SPOKANE MINING MEN'S CLUB.

[Resolution offered by Delegate Frank A. Ross.]

Whereas the mineral-land laws of the United States and Alaska, framed nearly 50 years ago, are unsuited to present needs and have developed various defects and evils that seriously retard or wholly prevent the development of our mineral resources; and

Whereas in consequence of this recognized failure of present United States mining laws adequately to meet present requirements, there is everywhere among mining men a pronounced and growing dissatisfaction; and

Whereas, owing to the thoroughness with which the surface of our older mining districts has been prospected, the discovery of new, valuable, and usually more or less deep-seated mineral deposits is daily growing more difficult; and

Whereas those States that have endeavored to correct certain flagrant defects in the said United States mining laws have found patchwork legislation to be impracticable and that nothing can be done effectively without action of Congress; and

Whereas many unsuccessful attempts have been made in the past to interest Congress in this most important matter of mining-law revision;

Resolved, That it is the conviction of this representative body of mining men, in convention duly assembled, that any further delay on the part of Congress to take definite action in regard to a comprehensive revision of United States mining law must inevitably work great hardship upon the mining industry as a whole and may even threaten its future. Consequently the convention hereby petitions that this Sixty-fourth session of Congress appoint forthwith a mining law commission of not less than five prominent persons, closely and actively identified with the mining industry and thoroughly competent to take evidence in the principal mining centers of the United States and Alaska over a period of not less than one year, and afterwards to work out for presentation to the next session of Congress an harmonious and thoroughly coordinated code of mining law that shall best serve and safeguard the present and future interests of all concerned.

Resolved, That it is the sense of this convention, first, that the said commission should consist of at least one business man, one mine operator, one mining engineer, and two mining lawyers, each of acknowledged ability and sound judgment.

Second. That the members of this commission should receive such adequate compensation for their services as would justify them in devoting their entire time and energies to the solution of the numerous problems involved.

Third. That the commission should have power to avail itself of all possible sources of information, aid, or legal counsel.

Fourth. That always in taking evidence, as well as in drafting a new code, the commission should keep before it the following fundamental desiderata:

(1) Reservation of all minerals in pending or future patents for agricultural and timber lands and all minerals but stone in stone-bearing lands, with adequate provision for locating and working the same.

(2) Abandonment of the extra-lateral right in favor of the square location and vertical planes through the boundaries thereof, each claim to be 1,500 feet square.

(3) Creation of a definite procedure for acquiring mining rights where mineral does not appear on the surface, and, therefore, where discovery may be long deferred.

(4) Definition of the term "placer" to include deposits of natural water-washed material lying above solid bedrock; also the establishment of a reasonable period of years beyond which placer patents shall be immune from attack on the ground of fraud; also the establishment of a preference right by which a placer owner may locate any lode or lodes that may develop on his placer claim.

(5) Provision for locating and working petroleum, phosphates, rare earths, and other economic minerals and deposits that are not specifically mentioned in the present statutes.

(6) Provision for the establishment of some competent court of law before which contest cases between rival claimants may be tried and to which appeal may be had from decisions of the Interior Department, the said court to be a court of last resort.

(7) Provision for a radical change in the method of staking claims.

NOTE I.—For instance, over the ground he wishes to locate the locator should be required to brush, blaze, or monument a straight base line not more than 1,500 feet long, horizontal measurement, at either end of which shall be erected a permanent monument of suitable material upon which shall be posted, carved, written, or otherwise preserved the name of the claim, together with specifications as to the number of feet claimed on each side of said base line and at right angles thereto, the sum of the distances on both sides of the base line not to exceed 1,500 feet; priority of date of officially recorded notice of any location shall determine ownership in cases of overlapping claims; and no title shall vest in a locator until such notice is recorded, after which copies thereof shall be posted on the terminal monuments and be kept renewed; consequently the present statute requiring discovery of mineral before location should be abandoned in favor of open location, safeguarded by requirements sufficiently severe to prevent the holding of ground for purposes other than that of bona fide mining.

NOTE II.—Immediately upon the filing for record of any location notice the recorder should give the entry a serial number, which, together with the name of the recording office and claim, shall be printed or painted on metal or cloth and be posted upon the terminal monuments of each claim.

The reasons for this numbering and posting of claim locations are two—first, to facilitate examination of the records both as to ownership and the performance of required work, and, second, to serve as public notice of ownership to those seeking easements over or through the ground in question.

(Under the present loose system of locating, monumenting, and recording it is practically impossible, in many instances, for electric-power companies to discover the owners of land over which transmission lines must pass on their way to the mines; consequently, damage suits that amount to blackmail are by no means rare, and power companies suffer heavily, all of which operates as a burden upon mining.)

(8) Survey of a claim and the establishment of the boundaries of the claim by setting of supplementary corner posts shall be required within a reasonable time after the official recording of the location notice, the cost of same to be credited to the account of assessment work.

(9) The cost of building practical and valuable roads and trams shall be credited to the account of assessment work.

(10) The performance of actual assessment work, or its equivalent, as above, shall be sworn to and recorded.

(11) Existing titles shall be reaffirmed and fully recognized and no effort shall be made to create retroactive legislation.

(12) Finally, the commission shall seriously consider the present laws of British Columbia in drafting a new code, applying proper remedies for such minor defects therein as are now recognized.

(It was moved, seconded, and carried that the resolutions as outlined by the secretary be referred directly to the committee on resolutions.)

Mr. **Frank A. Ross.** With reference to the resolutions offered by the Spokane Mining Men's Club, I have only one thing to say, and that relates to the attitude of the mining men of the Northwest. When Mr. Sharpless first communicated with us, asking our cooperation and that we send a delegate to this meeting, the idea was turned down completely. We refused to consider it, for the simple reason that there have been so many failures to get satisfaction out of Congress that we had lost heart and faith. Our association is composed of active men in British Columbia, all of Washington, and part of Oregon, quite a representative association of mining men. However, when I had explained to our association that this was to be a different kind of affair, a meeting of men who really knew all of the procedure, all of the steps in the taking up of mining ground, and that they were mining engineers and mining operators of experience, our members changed their minds and sent me here to represent them.

I came here feeling that our reason for coming was to impress Congress by our presence. I understood that former addresses which have been made to Congress had failed for lack of representation. After listening to Secretary Lane and to the very practical discussion by Mr. Taylor and Mr. Winchell, there is absolutely nothing to be added as to the necessity for revision. It therefore seems to me that we must bow to the custom of Congress and do what we can by our presence to encourage the investigation of the subject at this session.

Mr. **Winchell.** I do not know whether this is exactly in the form of a resolution, but I wish to make a motion, which, perhaps, ought to be considered by some committee at this time. My idea is that this conference ought not to meet, pass resolutions, and adjourn without making provision for carrying on this work along the lines suggested by Representative Taylor. We know from past experience that we can not merely ask Congress once and leave our plan with them to carry out. We must exert pressure by means of constant reminders. This we can do through proper organization and judicious use of our membership in the various mining societies. Therefore I should like to present this motion for the consideration of the meeting:

I move that this conference express itself in favor of the creation of a permanent committee on mining-law revision, such committee to consist of five members from the Mining and Metallurgical Society of America, five from the American Institute of Mining Engineers, and five from the American Mining Congress, the members to be appointed by these respective organizations; such committee to have the power to select its own chairman and secretary, and to add to its membership not more than ten additional members interested in the subject for which the committee is created. The work of the committee shall be to further the interests of the mining industry through congressional legislation in accordance with the resolutions adopted at this congress, and its joint report shall be presented to each of the societies formally represented in its composition.

I do not ask the creation of this committee at this time, because it is now in order for each of the organizations whose membership will go upon the committee to create its own committee and instruct it to cooperate or form a part of this joint committee.

Mr. Thompson. I should like to ask Mr. Winchell if it would be in accordance with his ideas that the membership of that committee should be less than a possible maximum of 25? This seems to me to be an almost unmanageable number. Merely as a suggestion, would not three from each society be a better number?

Mr. Winchell. My idea is that each national organization would like to have on the committee members from certain sections of the country. If you limit the number to three you can not so well represent the mining community as a whole. We can do the work much better with a smaller committee, but it would perhaps be more representative if selected from membership throughout the country.

The Chairman. You have heard the motion offered by Mr. Winchell, which has been duly seconded. That motion is one which might be put immediately to this meeting and not necessarily referred to the committee on resolutions. However, inasmuch as the committee on resolutions might, with more leisure, suggest some improvements in the language, it may be advisable to consider this motion as a resolution and refer it to the committee, and with the consent of Mr. Winchell it is so referred.

I think it would be desirable also if this meeting should now authorize the committee on resolutions, on its own account, to formulate resolutions pertinent to the subjects that we are discussing, and introduce them at a later session.

(A motion to that effect, made by Mr. Stone, was seconded and carried.)

Thereupon, at 12 o'clock, recess was taken until 2.30 p. m.

AFTERNOON SESSION.

The convention reassembled at 2.30, W. L. Saunders presiding.

The Chairman. We have this afternoon as the first speaker a United States Senator who has done more for the movement that has brought us here than perhaps anyone else. It was Senator Smoot who introduced a bill in the last Congress, and practically the same bill has been reintroduced, and, I understand, has passed. It gives me great pleasure to introduce Senator Smoot of Utah.

Senator Smoot. What I have to present this afternoon will be very brief indeed. I desire simply to call your attention to some of the conditions that, in my opinion, should be considered at this meeting, and certainly will be considered if we are fortunate enough to obtain a commission for the purpose of codifying and amending the mining-land laws of the United States.

For at least 12 years past there has been a pronounced discontent with the present code of mining laws, and that discontent has been voiced by resolutions calling attention to the evils and asking for the correction of this or that feature of the laws relating to mineral claims located upon the public domain. Complaints of this sort have increased in volume and have found expression not only in mining congresses but also in the press of the mining communities, in the mining journals, in the societies of mining engineers, and, in fact, through every medium available for the expression of public sentiment. Up to the present time they have been without result, for the reason that the mining laws are largely interdependent, and it is difficult, if not impossible, to correct one feature without striking out the entire code. Many of the States affected have tried to make improvements, but found that nothing effective could be done without the action of Congress. I myself have attempted to correct a number of the evils of the present mining laws by the introduction of bills in the Senate, and have found it impossible to secure action. One of the main reasons given me was that our mining laws should be revised not by piecemeal, but by a thorough and complete codification and revision.

I became convinced that patchwork was impossible and general revision was absolutely necessary. All of the problems in such an undertaking are unusually difficult. It is evident that a satisfactory solution will require the aid of men of experience and judgment, together with a free and direct expression of views by the mining communities themselves.

I fully agree with the opinion of your committee as it has been submitted to me by many societies and organizations throughout the country, and particularly by the capable committee of the Mining and Metallurgical Society of America, whose program, as I understand, is as follows:

1. The mining law should be revised not piecemeal, but thoroughly, so as to coordinate and harmonize its various provisions.
2. A statute of limitations should establish a reasonable term of years, beyond which placer patents shall be immune from attack on the ground of fraud.
3. Full privilege of appeal to some competent court of law should be provided for in all cases of contests between rival claimants or between a locator and the Government.
4. Notice of mining locations should be recorded as to give the fullest possible public notice.
5. The apex law should be abolished.
6. Existing titles should be reaffirmed and fully recognized, and no effort should be made to create retroactive legislation.
7. For the purpose of giving the fullest consideration to the needs of every branch of the mining industry and every section of the country it is desirable that a Government commission be created by act of Congress whose duty it shall be to investigate by every proper means the questions and interests here referred to and to make recommendations as a basis for the proposed mining law revision.

Recommendation No. 5 provides for the abolishment of the law of the apex. For 10 years I have been working to secure the repeal of that law, with its uncertainties of title and its prolific causes of litigation. If I had the time I could point to unnumbered cases where that law has been the means of prohibiting the thorough development of great mining camps in this country.

It is unjust, and it has been a grievous burden for the mining industry of this country to bear. [Applause.] Still other reasons for desiring the repeal of the apex law, in addition to the conflicts caused by extralateral rights, are the difficulties occasioned by the consequent irregular shape of claims and the overlapping lands.

I would also like to provide for—

(1) "The creation of a definite procedure for acquiring rights to those claims in which the minerals are not near the surface, and where discovery must in consequence be long deferred." If the ruling of the Land Department as enforced to-day had been enforced 20 years ago, two of the largest mining camps of my own State would lie as they then lay, a waste; and the revised law should certainly provide against contingencies of that nature;

(2) Tunnel locations and the uncertainties of titles caused to neighboring claims thereby involved;

(3) The present nonobservance of the law of discovery;

(4) The partial or complete nonobservance, through various expedients, of the law of assessment;

(5) The location of an unlimited number of claims by one person; and

(6) Locations by proxy.

I can point to mining districts that have been held for years and years by what I may term the dog-in-the-manger prospector. He and his particular friends locate the claims on the 1st day of January and relocate them from one year to another, and never spend 5 cents on them beyond the expenses for location notices.

That practice should cease; and men who are willing to risk their money in developing a new camp, or in exploiting to a larger degree the camps already established, ought to have the right to do so, and they ought to have it under the law. A man should be compelled to spend his time or his money in the development of any claim that the Government grants to him.

Being convinced of the absolute necessity of change in our mining laws, some years ago I introduced a bill in the Senate providing for a commission to codify and suggest amendments to the general mining laws. That bill provided that the President should appoint a commission of three members, one of whom should have practical experience in the operation of mines; one should be a lawyer experienced in the practice of mining law; and the third a member of the United States Geological Survey.

Objections were raised at once. I received letters from all over the United States suggesting that that commission should be increased to five, and that two of the five should be practical mining men; that one of them should be a lawyer experienced in the practice of mining law; that one should be a member of the United States Geological Survey, and one a member of the Bureau of Mines. When I undertook the introduction of an amended bill embodying those suggestions, I found the committee disposed not to grant the increase. Among other objections were the added expense, and the misgiving that the committee would be so large that it would be cumbersome, and would not do the work so well as three members.

I accepted the suggestions of the Committee on Mines and Mining of the Senate, that the commission should consist of but three members, and that bill was reported favorably by the committee. But, owning to the congestion during the last session of Congress, when the ship purchase bill was under consideration, this bill, with many others, fell by the wayside. On December 7, this year, I introduced a bill in the Senate (S. 52) for the same purpose, reading exactly like the bill that was reported by the Committee on Mines and Mining in the last session of Congress; and I have the pleasure of informing you to-day that the committee has again acted on that bill; it is now upon the calendar of the Senate, and I assure you, gentlemen, that the very first day that the calendar is reached that bill will pass the Senate.

I have every confidence that the bill will become a law at this session of Congress. In fact, if promises that have been given me by Members of the House are fulfilled, there is no question about it. The Secretary of the Interior is in favor of it; the administration is in favor of it. I have confidence that the President will appoint as members of the commission, if the bill does become a law, men prominent for their knowledge in mining law and in the operation of mines. They should be versed in the prospecting of claims, in mining operations, in mine litigation, and in the history of mining laws. They should invite opinions from the public bearing on the points at issue, and the experiences of other mining authorities should also be consulted. Finally, the recommendations of the proposed commission should be unitedly supported by the Mining and Metallurgical Society of America, the American Institute of Mining Engineers, the American Mining Congress, all organizations working for the further development of the mining industry, and all communities in which mining forms a part of its industrial activity. Do not allow any lack of harmony to prevent the ultimate success for which you are struggling to-day; with united efforts, I feel assured that it will not be many years before our mining-land laws will be codified and amended in such way that the industry will go forward in the future with greater strides than it ever has in the past.

There is one further subject to which I wish merely to refer, and I hope to do it with my usual calmness, although I must admit that I sometimes lose my patience while considering the question—that is, the question of leasing. You may say that this question is not being discussed now, but I hope and trust that every man interested in the development of minerals will take notice that there is a growing feeling that the production of the minerals of this country will be best served and best regulated by a leasing system. We find it now in control of our water powers in the West; it is now proposed for all the public lands of the West; and if this proves successful, I expect to see the same method applied to the mineral lands of the United States, all initiative to be controlled, regulated, and directed from the bureau here in Washington. I earnestly wish that the people of this country knew what is being undertaken at this time. Are we to become a community of tenants? Is our Government to be a landlord? I beg of you, my friends, that wherever this proposal is brought to your notice, particularly as applied to the development of minerals in this country, you will fight it. As I look at the western country and I observe the regulations that have been put into force for the withdrawal of mineral lands under the pretext that they are forest reserves, I can see that the development of minerals in this country is not going forward as it should; and this is going to have an effect upon the commerce of the United States, for that which is produced from the ground is the very life blood of commerce. When men are compelled first to locate their land, and then to comply with the necessary laws of assessment; when they risk all that they have, and all they can persuade their friends to give them, in order to prove their theories that there is mineral in a small piece of ground, it ill becomes anyone, particularly our Government, to say, "If you lose everything, that is your business, but if you are successful, we will take charge of it, we will put our hand upon it, and take from you your gains." Such gains rightfully belong to the men who not only made the sacrifice but took the chances of losing all they had. [Applause.]

But what we are all interested in now is the codifying and amending of the mining laws of the United States. I believe that we are going to be successful, and I wish to say to the members of this convention that if I can do anything to assist in bringing about the consummation of that desirable end, it will give me great pleasure, and I shall feel amply repaid for all the time I have given to this problem if I can get that commission appointed and to work.

I thank you for this opportunity. I wish this convention unbounded success in its endeavors, and I hope that what is said here may be the means of bringing the mining interests of this country closer together, that their labors may be more united than they have been in the past, and that this great industry will be restored to the position it has held in former years, being one industry that never fails the country in time of peace nor in time of war: [Applause.]

The CHAIRMAN. Senator Smoot, I am sure I express the sentiment of the delegates when I say that we are deeply indebted to you for your most interesting and valuable address. May we impose upon you a moment to ask if you will be good enough to explain to the delegates the difference between the two bills relating to this subject that are now before Congress?

Senator SMOOT. I have not read Mr. Taylor's bill (H. R. 18), which was introduced on December 6, 1915, but I take it for granted that it is about the same as the one he introduced last year. The bill that I introduced provided for a commission of three members, while the House bill provides for five members. The requirement of the House bill is this: That these commissioners shall be selected because of their recognized knowledge of the mining industry and mining laws, and shall serve without compensation. My bill calls for a commission of three, two of whom shall be lawyers of large experience in the practice of mining law, and one a mining engineer, who shall have practical experience in the operation of mines; their compensation is to be $500 per month, and the bill carries an appropriation of $25,000 to pay the salaries of the commission and their traveling and clerical expenses.

I discussed the question of compensation with the Secretary of the Interior, and came to the conclusion that it is not proper to limit the choice of commissioners to men who can afford to give their time, and pay the expenses that will be absolutely necessary for gathering the required information. The Government of the United States is not so poor as yet that it can not pay $25,000 to help an industry which turns into the commerce of the world, and particularly into our own country, the very blood that gives it life. The information is to be gathered for the Government's benefit, and I think beyond all question that the commissioners should receive reasonable compensation for the services rendered. The House bill provides an appropriation of $25,000 for the payment of actual necessary expenses of the commission, including traveling expenses, and services of a secretary and other necessary employees.

I went into this question with Mr. Kirby, then chairman of the committee on mining laws of the American Mining Congress, and we discussed the desirability of paying anything. We held a consultation with the Secretary of the Interior and came to the conclusion that $25,000 was ample to pay the necessary expenses, and so it will be if you put some practical hard-sense men on that commission.

The chairman of the Committee on Mines and Mining of the Senate, Senator Walsh, of Montana, has studied the question just as deeply as I have, though perhaps not quite so long, and it was through my deference to his opinion that our bill authorizes the President to appoint lawyers of large experience in the practice of mining law as two of the commissioners. If you consider some of the mining attorneys of the West, those who are eminent, you will often find that they are very practical about the operation of mines. I think I would take the opinion of Judge Dixon, of Salt Lake City, as to the likelihood of establishing a mine at a given place as readily as I would that of any man except possibly a geologist of great renown. Men of such eminence as Judge Dixon have not only a comprehensive knowledge of the mining law, but they have acquired a comprehensive grasp of geology and mining as well. It was for this reason that Senator Walsh thought that there should be two men of that character and one of practical experience.

As between the two bills there is so little difference that it will never do, gentlemen, for you to become divided upon them. I do not care whether you approve my bill or Mr. Taylor's bill; all I want is results and the passage of some bill. I am afraid we can not pass Mr. Taylor's bill in the Senate. I know that we can pass my bill, but rather than have any disunion in this connection, I would a thousand times rather have you approve the House bill and adopt it as your opinion rather than to have the least friction.

The CHAIRMAN. Senator, if you will permit me to ask you one more question, I think that in Mr. Taylor's bill, section 2, an exception is made of coal lands, while no exception occurs in your bill. Will you be good enough to give us the reasons for that?

Senator SMOOT. I have not discussed that matter with Mr. Taylor, and therefore would not say what his reasons are, but my opinion is that this commission ought to make an investigation of coal mining in the United States. It should be asked to make recommendations respecting the coal laws of the United States, Alaska, and the Territories, which ought to be amended. In fact, the late Director of the Bureau of Mines, Dr. Holmes, discussed that question with me many times; he was of the opinion, as were all of the Members of the Senate to whom I have talked, that the proposed inquiry should include coal lands. Coal mining is one of the greatest industries in the country, and I think it deserves examination just as much as any of the others.

Whatever this convention finally decides upon will have great weight, I believe, in the consideration of bills by the Senate and perhaps in the House. I know that you have no other ideal but to do that which is for the best interest of all, and, knowing that, I have absolute confidence in your judgment in the justice of the final conclusion to which you arrive.

Mr. W. R. **Ingalls.** This morning, following Mr. Taylor's reading of his bill and his remarks on the subject, we had quite an interesting discussion of many of its provisions, especially those wherein it differs from the bill that Senator Smoot has introduced. I expressed the opinion that Mr. Taylor's exception of coal land, oil land, and some other classes of deposits, might not, with the language in which it is phrased, accomplish just what is intended. During the noon hour some of us had further discussion on the subject, and, taking it up in an offhand way, none of us thought of any cases wherein metalliferous deposits and coal beds, or oil and gas deposits, overlap. Maybe they do, but we could not think of any case. However, there is one case of overlapping that would come absolutely within the language of Mr. Taylor's bill; I refer to phosphate land. Cases are known where phosphate minerals and metalliferous minerals occur in conjunction and are worked conjointly.

Mr. Winchell mentioned a case of that kind that occurred in Utah. I believe there are mines in northern New York that are worked primarily for iron, but have a phosphate gangue, which is discarded in the tailings and is sold as a commercial product.

One of the most famous cases of litigation that this country has known—a litigation which far antedates all of the litigation over the apex law—arose in a case where a person deeded one kind of mineral in a vein to one man and another kind of mineral in the same vein to another man. I refer, of course, to the zinc-ore deposits in New Jersey. The case of overlapping of metalliferous and phosphatic deposits manifestly requires some attention to that part of the phraseology of Mr. Taylor's bill. If an exception is to be made in either of these bills, the language of the excepting clause needs to be carefully scrutinized. Congress needs at once the opportunity to obtain expert advice such as this meeting can give.

Mr. **Jennings.** I would like to point out that quite recently it has been shown by some officials of the Bureau of Mines that the tailings from the large disseminated porphyry deposits of Utah and Arizona contain sufficient potash to become commercially valuable if a process could be found to extract it. Several chemists have already been put to work to find such a process. The question then arises, To whom shall that potash belong? The law governing the location of potash minerals is to be different from that which is applicable to copper; which is the mineral originally intended to be economically worked. I also have the impression that in some parts of the world they mine coal and gold from the same shafts. This is the case in the Transvaal, where, from the same shaft, coal and gold ore are hoisted. The coal beds have been developed in upper levels while the gold occurs in the banket formation at a lower horizon. It is quite possible that a similar condition may some day be found in the United States.

I would therefore suggest that if any exclusion is to be made the language of that exclusion should be carefully scrutinized, but I would much prefer to see no exclusion, because I can conceive no reason why the laws governing the location of coal, oil, gas, and soluble potassium should not be considered as embodied in the same codification that this commission is to bring to the attention of the Government.

The CHAIRMAN. There being no further discussion on this subject, the business of the meeting will continue. Dr. George Otis Smith, Director of the United States Geological Survey, has kindly consented to address us on the subject under discussion, the general subject of revision.

Dr. SMITH. "Enough has, I think, been adduced to prove that the present law is vicious and inexpedient, that its provisions bear hardly upon the mining industry, and that it ought to be either repealed or essentially amended."

These words, Mr. President, are not my own. That sentence was pronounced upon the mining law by a mining engineer in Montana before I was born. He continued his discussion of the conditions as they existed in his day by using the same terms—"uncertainty of title," "fear of litigation," and "blackmail"—which we have heard from this platform to-day.

The problem was much the same then as now. He suggested as the remedy the appointment, under authority of Congress, of a commission which should visit the mining districts of the West, take testimony, and investigate the subject in all its bearings and report to Congress a mining code. In the intervening period we have had this program before us, and now this conference is for the purpose of trying to accomplish the same things that was recommended by a Montana mining man in 1868.

Reference was made this morning to the conditions under which the mining laws of 1866 and 1872 were passed. Conditions, as I understand them, were not favorable to the passage of a comprehensive bill. It was to the credit of the sponsors of the mining law that they secured a sufficient hearing in Congress to enact the legislation that is even now on the statute books. The law was not ideal and is less ideal at present. It was not well balanced and it was lacking in detail. I noted the way in which Judge Lindley—probably our best student of the varying decisions based on the mining statutes and the best authority on the mining law—summed up his statement regarding the law of 1872, which unfortunately is the law of to-day. He concluded in these words:

> In many of its most important features we have conflicting theories enunciated by different courts of equal dignity and equal ability until we are almost constrained to say that "chaos has come again."

In this period, since 1872, we have seen the development of the mining industry of this country. Then it was an infant industry; lusty enough, however, to secure some recognition in the Halls of Congress. To-day it is a mother industry, upon which other industries depend in large part. You well know, Mr. President, to what extent the mining industry, the mineral products, and the manufactures thereof play a part, not only in the internal commerce of this country but in international commerce. In the past two decades a change has occurred in our foreign trade, from the exporting of agricultural products, which amounted to the larger part of the value, to the exporting of mineral products and their manufactures, which to-day—not only under the exceptional conditions of this year but in normal years—constitute nearly half of the value of our exports.

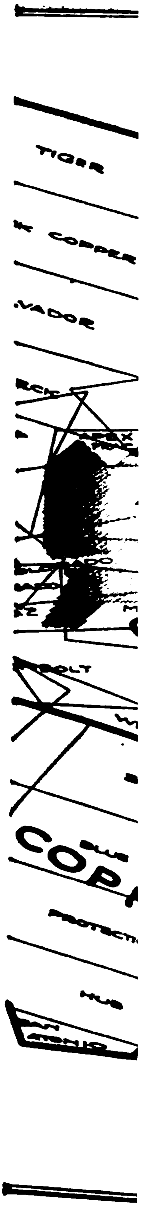
In that period we have seen metal mining increase. In 1872 the gold production of the country was only 40 per cent of what it is now. In 1872 the silver production was less than one-third of what it is now. The lead produced was only 8 per cent of the present production; zinc about 5 per cent of the present output; and when we come to copper, in 1872, the annual production was only 2½ per cent of what it is at the present time. Those figures present a plain statement of the growth of the industry of metal mining in this country. Not only has this been a period of marvelous industrial advance, but that advance has been based upon a large increase in the knowledge of the geology of ore deposits and of the technology of mining and metallurgy. These advances have furnished the basis for the advance in the mining industry; yet no change in the mining law.

So we now come to the year 1915 with the laws of 1872. The purpose of that law was development, and no change is needed in purpose, only new methods are needed to enforce that purpose. The old law has broken down at many places under the strain of conditions that could not be foreseen 40 years ago. I do not know that those of us of this present epoch can claim that we have any vision of a new heaven and a new earth, but we of this later generation surely see a new metallurgy and a new geology. We know that the waste rock that was thrown away, or that was left unmined only a few years ago, is the ore of to-day. We know that deposits of a character never dreamed of several decades ago are now the deposits that pay the large dividends. I have in other places confessed to being somewhat of an optimist. If we think of the mining industry of this year which has seen so much of prosperity in the metal mining—in the mining districts of the West—I think we all can afford to be optimists.

This morning you heard Mr. Kirby sketch some of the early days of the mining industry. It may have occurred to you, as it has to me, that there is a significance in the fact that even the steps in the evolution of civilization bear mineral names—the stone age, the copper and the bronze age, the iron age, and as some one has termed the present day, the coal age. The significant thing, I believe, is that the year 1915 shows that we are not only using a larger per capita consumption of coal, to which you, Mr. President, called attention at a recent meeting of engineers, but we are also consuming more iron, more copper, and even more stone than in any other age since the dawn of civilization. It is because of the recognition of the extent to which modern civilization rests upon the mining industry that we are assembled, as I understand it, to ask for a modern code of laws to assist, and not to obstruct, the utilization, by modern methods, of these great mineral resources with which this country has been blessed. [Applause.]

The Chairman. Dr. Smith holds a very distinguished position in the Government; a position which he has filled with great honor, and I am sure that what you have said to us, Doctor, is very much appreciated.

We have with us Mr. J. Parke Channing, who has had considerable experience in the subject we are discussing. Mr. Chan-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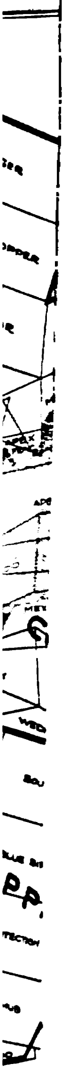


ning's position has been rather unusual, in that he has participated in the abandonment of the apex law by mutual consent of adjoining operators.

Mr. Channing. Although the law of the apex has been the law of the land since 1872, a great many mining operators have not been able to carry on their work under its provisions. It has been the custom if a man purchased a claim or a mining property which had the outcrop of a vein for him to protect himself by acquiring those claims which lay on the hanging-wall side, so that he did not have to rely on the laws of the apex for extralateral rights. I think, also, in certain districts, notably Leadville, in the early days, it was decided that on very flat deposits the law of the apex should not hold.

As you know, the law of 1872 was based on a very naïve theory that a vein was a beautiful and regular thing which dipped down into the ground something like this sheet of paper. Such, however, was not or is not the case; and in later years, as the richer fissure veins have been exhausted and we have been under the necessity of mining large and low-grade masses of ore, the conditions and rules which applied to this older form of mining would be absolutely inapplicable to the new deposits.

My own particular experience, to which I wish to call your attention, was gained in the Miami district of Arizona. Previous to 1906 work was done in the southern part of the district upon certain narrow veins of rich copper silicate ore which dipped to the north, and the adjoining country to the north showing more or less mineral indications was located. Certainly there was mineral in place on these northern claims; whether it was valuable or not no one could say. During 1906 or 1907 certain work showed that there existed what was then considered low-grade copper ore, running 2 or 3 per cent, which instead of being in veins was in the shape of huge masses. These were developed by shafts, drifts, crosscuts, and later on by drill holes. Roughly speaking, the Miami district was then taken up by four different large companies, which were known as the Miami, the Inspiration, the New Keystone, and the Live Oak. The district was covered with numerous claims, 1,500 by 600 feet, a great many of them simply locations by the prospectors, in which the boundaries were inaccurate and the corners badly located.

The first thing that the large owners did was to determine what their surface boundaries were. It was done amicably. Records were investigated, testimony was taken informally, not before any judge, and the best boundary which could be determined was fixed upon. If there were overlapping claims, where it was impossible to decide who was the owner, then the Gordian knot was cut by simply drawing a line through the middle of the ground and giving one-half of the claim to one company and one-half to the other.

Finally, without any litigation whatever, the surface boundaries of these four properties were adjusted to the satisfaction of everybody. Development continued on the ore, and it was soon found that in two or three cases the body of ore extended across the boundaries, so that the same mass of ore was partly within the ground of one company and partly within the ground of the other company. There were murmurs in the air of invoking the law of extra-lateral rights. One of the most noted mining lawyers in the country advised his clients that he thought such a thing was undesirable, that it would lead to fruitless litigation, and that he doubted whether either side could prove an apex or enforce extra-lateral rights.

These four companies then finally got together, and by a series of legal documents drawn by the various attorneys agreed that they would respect vertical boundaries in mining their ore; in other words, that the same law which is applicable in Michigan as to iron and copper would apply in Arizona. This agreement was made at least four or five years ago. Further than that, between two of the companies agreements have been made as to the exact method of mining the ore upon the boundary to their mutual advantage, so that the one getting there first would be able to take out his ore and yet not damage that of his neighbor.

This is a simple statement of what has occurred. I shall throw upon the screen some slides which show the enlarged surface map and will also show the various plans of the main ore body of the Miami Copper Co., showing that it would be physically and practically impossible to apply to it the law of the apex. I will also show you some views of the open pits of some of the larger so-called porphyry coppers, which are mined by steam shovels, and it will be obvious to you that properties of this kind could not be economically operated under the law of the apex.

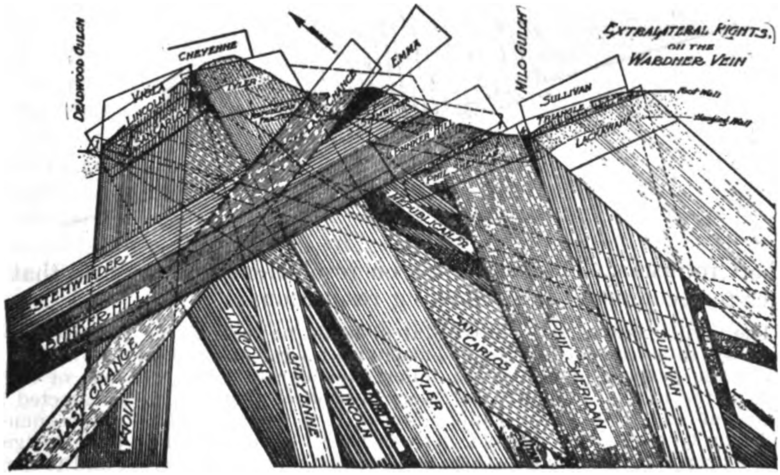
You will observe on the large may that the eastern or right-hand side of the Miami Copper Co. holdings is not covered by mining claims. This was taken up by us to give us the necessary ground upon which to locate a concentrator and power plant, and to pile our tailing. This was nonmineral land and, although covered with sagebrush, was within a forest reserve. One of the last acts of Gifford Pinchot, I believe at the very time that the cabinet was discussing his dismissal, was to have an order issued eliminating this land from the forest reserve so that we could acquire title to it.

(Mr. Channing here gave a stereopticon exhibition of the territory referred to.)

The Chairman. Mr. Channing has given us a very interesting exhibition of the weakness of the law of the apex. He is one of our most distinguished mining engineers, as you know, although, until he spoke of his close association with Gifford Pinchot, I was not aware of the fact that he had obtained his progressiveness from that side of the house. He certainly has led the Government of the United States in disposing of the law of the apex by succeeding in the adoption of a mutual agreement to abandon the law.

Mr. Winchell. I should like to call attention to the working out of the apex law as illustrated by actual conditions in the Coeur d'Alene district, in Idaho. Sketch No. 1, prepared by Mr. Fred T. Greene, of Butte, illustrates the difficulty of operating in that camp under the rights as they have been established by decisions of the courts. You will note, for instance, the extra-lateral rights of the Tyler claim. This claim contains the outcrop or apex of a vein which, as established by the courts in accord with the testimony of geologists, consists for the most part of absolutely barren and unmineralized quartzite. It has a definite footwall, but its hanging-wall boundary is irregular and has teeth more prolonged than any crosscut saw in proportion to its width. The vein is therefore at some places narrow and at other points more than 500 feet wide. This vein belongs to the Tyler between the planes of its end lines down to the point where is encountered the side end line of the senior Last Chance claim. The apex of the vein crosses both side lines of the Last Chance claim, which therefore become end lines. Hence the Last Chance has rights prior to the Tyler, but gives way in its turn to the still older Bunker Hill location, which has a clean sweep through them all in the direction of its side end lines. You see how the Tyler working down from surface on the dip jumps over (or under) the Last Chance, the Emma, the Stemwinder, and the Bunker Hill and again resumes its extra-lateral rights on dip below that territory, having no right to follow through those claims except by keeping within the vein, but having right of way so long as no ore is extracted.

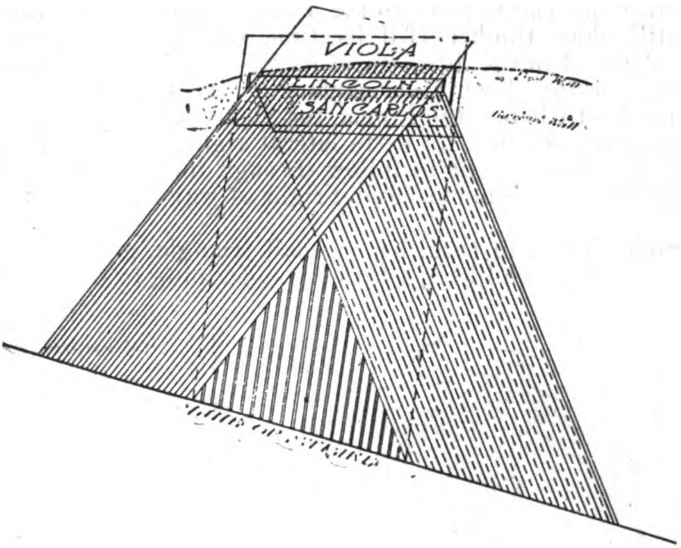
The Stemwinder, in turn, has a small triangle, gives way to the older Last Chance, and loses a little by sidewiping to the San Carlos and Viola.



In sketch No. 2, also by Mr. Greene, we have another interesting situation. The San Carlos and Viola are so located that the side line between them bisects the apex or outcrop of the vein. There was a lawsuit over that situation, as over all of these claims; and the Supreme Court decided that in such a case the senior location takes all of the vein beneath the surface. Of course the senior has no right upon the junior claims' surface; but 10 inches below the surface, or any distance at all, the senior owns all of the vein downward within the planes of its end lines. And the junior, whose end lines were located in a different direction, had extralateral rights after those of the senior have been exhausted.

A third claim, the Lincoln, was located for the purpose of acquiring rights on the dip, which did not belong to either the Viola or San Carlos; and if the sketch were continued to greater depth we should see how two more segments exist—one east and the other west of the Republican claim—not covered by any one of these three claims.

Other complications exist, as shown by the large colored map on the wall, an examination of which will show the difficulties of practical mining in a district where the claims overlap each other, with end lines running to all points of the compass, and where the veins have comparatively flat dips.



The CHAIRMAN. The committee on resolutions now reports that it wishes to recommend the following resolutions:

1. The mining law of the United States should be revised, not piecemeal, but thoroughly, so as to coordinate and harmonize its various provisions.

2. For the purpose of giving the fullest consideration to the needs of every branch of the mining industry and every section of the country as affected by the mineral-land laws of the United States, it is desirable that a Government commission be created by act of Congress, whose duty it shall be to investigate by every proper means the questions and interests here referred to, and to make recommendations as to a basis for the proposed mining-law revision.

3. That, in order to represent the classes of men whose interests will be affected, the proposed commission should consist of five members: One representing the legal profession, one representing the Department of the Interior, and three men actively interested and experienced in mining and the acquisition and handling of mineral lands.

4. That this commission shall be selected and appointed by the President of the United States.

5. That this conference believes that the services of such a commission are deserving of compensation, as well as reimbursement for all necessary expenses, but is more concerned with the actual establishment of the commission and its character than with the question of emolument, and will gladly see the work done through an honorary commission if Congress deems it advisable.

6. That this conference expresses itself in favor of the creation of a permanent committee on mining-law revision, such committee to consist of five members from the Mining and Metallurgical Society of America, five from the American Institute of Mining Engineers, and five from the American Mining Congress, and be appointed by these organizations. Such committee to have the power to select its own chairman and secretary, and to add to its membership not to exceed 10 additional mining men or others interested in the subject for which the committee is created. The work of this committee shall be to further the interests of the mining industry through congressional action in accordance with the resolutions adopted at this conference; and its joint report shall be presented to each of the societies formally represented in its composition

The CHAIRMAN. If it is agreeable to the delegates, we will consider the resolutions in order, and, if we have unanimous consent, we will couple No. 1 with No. 2. (After a pause.) There being no objection, they will be so considered.

Mr. WINCHELL. I move the adoption of Nos. 1 and 2 on behalf of the committee on resolutions. (The motion was duly seconded.)

Mr. TOLMAN. Does the second resolution contemplate the omission of coal and oil lands or their inclusion?

The CHAIRMAN. I do not think that either alternative is contemplated. The resolution is quite broad: "It is desirable that a commission be created." The resolution does not qualify the subject at all.

Mr. INGALLS. I think you do not quite get Mr. Tolman's idea. If I gather correctly he inquires whether this resolution is intended to cover all classes of mineral deposits, including coal, oil, gas, and salines, or whether the committee intends to introduce some subsequent resolution on that subject.

Mr. WINCHELL. The committee has no resolution to present upon that subject. It had been the desire of the mining profession, as expressed in correspondence during the past several years, as well as in meetings and by resolutions, to have the whole question investigated. It appears that at the last session of Congress a bill was introduced in the Senate limiting the scope of the commission's labors to the metalliferous mines. This limitation was stricken out by the Senate and a bill was passed without that limitation. A bill was then introduced in the House, without such a limitation, but upon the recommendation of the Secretary of the Interior the limitation was inserted and the bill was recommended for passage, restricting the commission to investigation of the metal-mining laws. It is not certain that Congress will pass the recent bill and it is not certain just what Congress will do as to permitting this commission to cover the whole field of minerals and oils. The committee, therefore, to whom this question was referred did not feel like making any recommendations, but simply suggested a commission to consider the whole subject; then, if its activities were limited by the passage of a leasing bill or by the specific wording of an act of Congress, the committee would have to accept such action as final.

(After some slight amendments in the wording of the resolution the motion was carried.)

The CHAIRMAN. The question now before the meeting is on resolution No. 3. The chairman of the committee on resolutions will please read it.

Mr. WINCHELL (after reading resolution No. 3). We sought, by this provision, to make it possible for the great prospecting class to be represented, those who are "interested and experienced in mining and the acquisition and handling of mineral lands."

Mr. MACBETH. Coming from a State in which the rights of the citizens have practically been taken over by the Federal Government, I desire to protest, on behalf of the people of Idaho, against permitting any Government officials to have anything to do with the revision of our mining laws. As the matter stands to-day, we are practically wards of the Government. We are denied the rights of citizenship which you men, who live in other sections of the country, enjoy. From day to day we are encroached upon. We do not wish, in the revision of our mining laws, to allow anyone connected with any department of the Government to have anything to do with the question. I move to strike out that portion of the resolution relating to a representative of the Department of the Interior.

Mr. CHANNING. I wonder if the gentleman from Idaho realizes that conditions in the United States are changing. Instead of being a country where individualism is rampant, as was the idea 50 or 100 years ago, we are slowly becoming a more civilized country, much more interdependent, and with a tendency toward—I will not say socialism, but perhaps collectivism—where we have to consider the duties that we owe to our fellowman.

Now, although I have benefited professionally, personally, and financially by our very liberal mining laws, I am not prepared to say that in the future the United States should not conserve its resources a little more than it has done. It does seem to me that it is possible that the prospector, or the mine promotor or investor, may be getting a little too much when he takes 20 acres of land, covering a large mineral deposit, and pays the Government only $5 an acre for it.

The gentleman must consider that conditions are changing, and perhaps the people of the United States will not tolerate the old conditions in the future. I believe that if anyone can understand that, or see the trend of modern thought, it will be a member of the Department of the Interior; I therefore think that it is eminently proper for a member of the Department of the Interior to be a member of this commission.

Mr. MACBETH. Possibly Mr. Channing and you gentlemen do not understand that 62 per cent of the area of Idaho has been taken from us. We have nothing left in that State but a narrow fringe along the shores of our rivers; that is all.

By the time I return to my home, I shall have traveled 6,000 miles to present our view to you, and to tell you precisely how we feel about this. We know that you are with us, but for reasons, possibly similar to those expressed by Mr. Channing, you do not like to declare yourselves. But I wish to inform you that a movement has been started in Idaho; attorneys are now engaged in preparing papers to contest the right of the Federal Government to every foot of land it holds. We propose to take the case right through to the Supreme Court of the United States, and to ascertain whether the Federal Government can rightfully enter Idaho and assert ownership of the tributaries of our navigable streams. We are bound hand and foot. For that reason, I came here to enter our protest before this conference. And we do question, in view of the existing conditions, the propriety of allowing an official of the Federal Government to handle any matter connected with the revision of our mining laws. We have suffered too much.

Mr. KIRBY. I am very sorry that a question of Government reservations in the West should have created so much feeling. I understand the conditions because I have been right there. I am very sorry that this question should have come up in connection with these resolutions, because I confess I can not see that it has any practical connection with the matter in hand. I sympathize very deeply with our friends from Idaho. I know just how they feel, but it seems to me that their grievance has nothing to do with this question. I am sure they would not, merely as a matter of feeling, wish to exclude somebody because he happened to have the brand of the Government official upon him.

At all hearings of this proposed commission some Government representatives will be present, and, as a matter of fact, they will be representatives from the Interior Department, because this is the business of that department. We should not forget that we are not the Government. We are trying to lay out a practical program, one which is most likely to be enacted. As a matter of fact, no Federal mining law revision, no revision of any kind will be enacted without the approval of the Interior Department. It is the Government that is going to permit this revision. We are not going to revise the law; Congress is going to do it; and whether we like it or not it is the Government above us which controls the situation. So then, when this committee inserted that provision to which objection has been raised, it suggested only what was sure to occur, a Government official will inevitably be placed on that commission; also, whether we like it or not, he will come from the Interior Department. We have simply recognized a part of the necessary machinery of the Government, and it seems to me that the gentleman's objection has nothing to do with this question. I am sorry that this animus has been injected, because it brings in an entirely irrelevant issue. [Applause.]

Mr. Ross, of Washington. I feel compelled to make a few remarks by Mr. Macbeth's calling upon me to follow. I am very glad Mr. Kirby spoke as he did, because he gives my views exactly on this subject. I know it is very difficult for eastern men, who do not visit us in the West, to understand the extreme bitterness that exists out there on the question raised by Mr. Macbeth. It is very bitter, indeed. But that is not germane to the subject under discussion to-day. If it were a question of conservatism, I, as representative of a section of the Northwest, would probably have to stand with Mr. Macbeth; but as to these resolutions and the constitution of the proposed commission, I must say that my feelings have been expressed by Mr. Kirby, and I hope Mr. Macbeth will understand it that way.

Mr. Teller, of South Dakota. I take pleasure in saying to Mr. Macbeth that I am very glad to find myself, to a certain extent, in accord with him in the sentiments that he expressed as to our feeling in the West toward a great many of the departmental rules and regulations. I think I feel just about like every mining man in the West who has had the experience of an amateur expert coming out and telling him whether he has a right to establish a mining claim or not; whether he has done enough work on it; whether he has found a mine, or whether he has not found a mine. I feel sympathy for the suggestion made by Mr. Macbeth, but I think the last two speakers have voiced the proper view, that this is not a fitting time or occasion for threshing out that proposition.

I have this suggestion to make, which I trust will appeal to Mr. Macbeth. This matter is bound to come before the Department of the Interior eventually. The President will not submit it to Congress without the recommendation of the department. Therefore it seems to me a good plan to have this one governmental representative on the commission. The other four members should naturally be western men familiar with mining conditions. If the four men understand their business and yet are unable to convince the fifth, it will be because they have a very poor case.

(The amendment offered by Mr. Macbeth was put by the Chair and was not carried. Resolution No. 3, in original form, was thereupon put to vote and was carried. Resolutions Nos. 4, 5, and 6, duly seconded, were separately put to vote and were all adopted without debate. The meeting then adjourned until 8.30 p. m.)

EVENING SESSION.

The meeting reconvened at 8.30 p. m., Mr. W. R. Ingalls presiding.

The CHAIRMAN. The secretary has been in receipt of numerous communications from persons prominent in the mining industry, with whom he has communicated previous to this meeting. Many of these communications are of peculiar interest. I will ask the secretary to read some of them.

Mr. Sharpless then read the following telegrams:

Regret exceedingly I can not be present to assist in the valuable service you are rendering to the mining interests of the country. I send you best wishes for success.

JOHN HAYES HAMMOND.

The necessity for a revision and simplification of existing mining laws is everywhere recognized. I trust that the conference of mining men to be held at Washington, December 16, may take steps that will result in success for a movement so commendable.

S. V. STEWART,
Governor of Montana.

I regret my inability to be present to-day. I am a firm believer in the work you are doing and trust that your labors will be crowned with success.

B. B. THAYER.

Since the present status of the mining laws of the United States seems to be a source of wide dissatisfaction, I feel that a wise revision during the present session of Congress would be desirable, for the purpose of making the provision relative to mining and mineral lands more fully serve present-day needs.

GEORGE W. P. HUNT,
Governor of Arizona.

I regret exceedingly that it has been impossible for me to arrange to attend myself or send a suitable representative to attend your conference called for the purpose of initiating a concerted movement toward the revision for betterment of existing mining laws. I am thoroughly in sympathy with this movement, as are my associates in the mining business, and I earnestly hope that your efforts may meet with success.

D. C. JACKLING.

Revision is needed. The radical effect of the United States mining law is that it is productive of uncertainty in titles. Uncertainty as to rights to veins or ore bodies is essentially similar to uncertainty of titles. The law of the apex is admirable in theory, but in practice it ofttimes is a delusion and a snare. It is true that much of the trouble and litigation has been due to the shortsightedness or excessive optimism of promoters or directors, in failing to protect themselves by the acquisition of sufficient surface ground, which they would have had to acquire under the common law, and in trusting too implicitly to the law of the apex. Many of these troubles are inevitable and can only be prevented for the future by a change in the law. Uncertainty likewise exists in the tenure of unpatented locations because of the absence of administrative provisions by which location rights can be made definite from the start and be protected against conflicting claims. Some such provision should be made, conditioned, of course, on the performance of annual labor, but it should not entail any burdensome expense. Care must be taken that the individual prospector and the grubstake man be not shut out. The mining customs and the statutes had in view the keeping open of the field of opportunity to the greatest number. The same spirit should obtain in the revision. Your public spirited labors are deserving of success.

WM. SCALLON.

Regret my inability to be with you and help forward the good work of revising the mining laws. Our people on the Pacific Coast are keenly interested.

T. A. RICKARD.

I regret very much that I shall be unable to attend the meeting of the various mining societies and organizations in Washington on December 16. I wish, however, to express my deep interest and to state my conviction that the mining laws of the United States should be thoroughly investigated and revised, especially the apex law; and I believe the subject would be most intelligently handled by a Government commission consisting of men familiar with the mining profession.

J. E. SPURR,
Vice President of the Tonopah Mining Co. of Nevada.

I trust your organization will be able to influence Congress to revise the mining laws of the country, more especially with reference to apex laws, which have operated very unjustly and disastrously in this district. Last winter a claim that had never produced a pound of pay ore apexed a number of producing properties a half mile and more distant, and put a lasting blight upon the Goldfield district, which has produced ninety millions and was just beginning to experience much greater mining activity. After the claim in question exacted tribute of nearly three-quarters of a million dollars it closed down, the claim itself being worthless for ore. Such iniquities have killed many a good mining district.

CHARLES S. SPRAGUE,
President Jumbo Extension Mining Co.

I believe it is high time that the mining laws of the United States should be thoroughly examined with a view to such amendments as a long experience in the mining sections of the country render expedient and necessary. The appointment of a competent commission to prepare needed amendments to the mining law code would appear to be the most feasible and practical method of reaching the desired results.

LEE MANTLE.

I heartily approve your action in petitioning Congress to revise the mining laws of the country and I earnestly hope that the much needed remedial legislation will result.

R. CHESTER TURNER,
Vice President and Mgr. Brunswick Consolidated Gold Mining Co.

Thorough revision of our mining laws urgently needed. In my opinion it can best be done by commission of engineers and mining men for such are better qualified to determine character and practicability of changes proposed. Legal phases of subject could be afterward worked out by counsel employed for purpose. Regret I can not attend meeting.

F. L. GARRISON.

The West End Consolidated Mining Co. is strongly in favor of the appointment of an investigating committee to draft a new mineral land law as expressed in resolutions of the Mining and Metallurgical Society.

J. W. CHANDLER.

The miners of Idaho hope that you may be successful in getting the United States Congress to act favorably upon your requests respecting a revision of the mining laws.

IRVING E. ROCKWELL.

Ten chambers of commerce have written letters approving the plans of the convention and have appointed delegates to attend.

About 300 letters were received by the secretary, and more by the chairman of the committee on mining law, from prospectors, operators, and mining companies, wishing the society success in its undertaking, and approving of its plans. Fifteen letters were received favoring the present apex law, but objecting to other features in the existing statutes. Only three letters have been received advising that no alterations be made.

The CHAIRMAN. The unanimity with which persons engaged in the mining industry express the opinion that our mining laws should be revised is certainly very important. Hundreds express themselves to that effect; 15 only are in dissent. In planning for this meeting we conceived that it would be interesting, instructive, and illuminating to present reasons verbally and graphically why, in several important respects, we are sure that the mining laws ought to be revised. In planning for this presentation we naturally turned to the gentleman, than whom no one in this land has made a deeper study of the subject in all of its phases, than whom there is no one more expert upon it. I have great pleasure in introducing to you, Mr. Horace V. Winchell.

HORACE V. WINCHELL. Although the era in which we are living is often called the age of steel, it might be more appropriately styled the age of all metals. Progressing step by step from the stone age and the bronze age to the present time, civilization has advanced to a stage in which nearly all of the metals are useful and necessary. Its organization is so complex and the art of metallurgy so advanced that special uses in increasing and practically unlimited number are found for the various products of the earth. Always dependent upon the two fundamental industries, agriculture and mining, mankind to-day is more vitally concerned than ever with the production and use of food and of the minerals used in the arts. A nation's prosperity and success depend upon the ability to furnish from its own resources first, whatever food is needed to sustain life, and second, the materials required in manufacturing articles used in commerce and the arts.

Since the power and relative standing of nations wax and wane with their control of necessary minerals, it has been commonly observed by historians that many of the wars of history have been occasioned by a desire on the part of one country or people to possess mines situated in the territory of another. Thus it has been pointed out by Hoover (Agricola) that Jason and the Argonauts in their search for the golden fleece were nothing but placer miners, the gold that they sought being in the sands of eastern rivers; the mines of Laurium often furnished the sinews of war for the Greeks; the contest for supremacy between the Romans and the Carthaginians was founded in large measure upon the desire of the Romans to acquire the mining interests of the people of Carthage. After the Romans gained possession of the mines of Rio Tinto they made war in Gaul to capture slaves for working the mines. In more recent times, we recall the conquest by the Spaniards of Peru and Mexico in the search for golden treasures, the struggle between the Swedes and other people of northern Europe over the possession of the great Fahlun copper mine, which was called by Gustavus Adolphus the "Treasury house of Sweden"; the conquest by the Germans of the iron ore and coal fields of Lorraine; the struggle in the Boer War over the control of the Transvaal gold mines; the conquest by the French of Tunis and Algeria, with their rich deposits of iron ore and phosphates; and the still more recent invasion and capture of the principal mining and smelting districts of Belgium. Indeed, from the very earliest days, dominion over minerals has been a prime desideratum of man. Our stone-age ancestor quarried the rock from which to shape his weapon; tribal communities located their habitations near the deposits suitable for such purpose; and many an unrecorded contest was fought to a sanguinary conclusion between those in possession and those who came from afar to renew their stock of arrow points, red pipestones for pipes, and native copper for domestic utensils or spear tips. Miners operated before Tubal Cain had use for a forge and before Solomon and Croesus could accumulate their treasures. The geographical distribution of the human race has from the very earliest times depended on that of easily won mineral deposits, and relative stability and tribal or national supremacy has been conditioned by the ability to retain and use them most extensively.

The standing of the United States among nations is due as much to its large production and consumption of metals and ores as to its climate, its soil, or the character of its population. No subject therefore can be of greater importance and interest to its people and its law-making assemblies than the conservation and proper encouragement of the mining industry. The magnitude and comparative importance of this industry are appreciated by many, but the mining man of wide travel and experience has perhaps better opportunity to observe examples of the backwardness and relatively low standing of those countries which are of inferior rank as mineral producers. It is easy to point to large and perhaps densely populated lands in which the state of civilization is retarded, whose industries are languishing, whose national existence depends chiefly upon manufacturing products, the raw materials for which are derived outside of their borders, or whose industry, because of the lack of mineral wealth, is chiefly agricultural. Such countries stand upon one leg only. The United States, with its unparalleled mineral resources, its geographical position in a temperate zone, and its broad fields adapted to agriculture, stands firmly upon two legs and both should be equally cared for in order to promote the fullest and most rounded development. If either leg be injured or neglected the national existence is crippled.

In our country the industry of agriculture is encouraged and protected by statutory enactment, and by the intelligent and solicitous attention of the people, but the mining industry is looked upon as something which does not require attention, something which will take care of itself and is supposed to be largely in the hands of a small group of plutocrats who are rather to be curbed than encouraged. That this is not a true estimate, and that the industry of mining and metallurgy, although a vital part of our national economy, is on the decline and deserving of the most careful attention from our National and State legislatures, is clearly indicated by the following statements from the report submitted on May 20, 1914, to the Sixty-third Congress by the House Committee on Mines and Mining:

> That the mining industries of the country, and especially the metal-making industries in our public-land States, are not keeping pace with the normal development of the country is clearly shown by the following data:
>
> In the population of the public-land States west of the Mississippi and Missouri Rivers there was an increase from 14,800,000 in 1900 to 19,600,000 in 1910, or 32 per cent.
>
> The agricultural crops of the public-land States had a valuation in 1900 of $921,000,000, and a valuation in 1910 of $1,950,000,000, an increase of 112 per cent.
>
> During similar periods the average annual valuation of all the mineral products in the public-land States increased from $287,000,000 during the period of 1901–1905 to an average annual valuation of $358,000,000 during the period from 1906–1910, an increase of less than 25 per cent; whereas the production of the precious metals in the public-land States decreased from an annual average valuation of $136,000,000 during the earlier period (1901–1905) to an average annual valuation of $127,000,000 during the latter period (1906–1910), a decrease of nearly 7 per cent.
>
> No better illustration could be given of the contrast in the treatment of these two great national industries than the fact that in spite of this lagging behind in the mining industry during this 10-year period the National Government expended for the reclamation of agricultural lands in these public-land States not only all of the money received from the sale of public lands for agricultural purposes, but also nearly $7,000,000 received from the sale of mineral lands in these States.
>
> The reduction in the number of men employed in the different metal-mining industries in the public-land States tells even more clearly than do the figures of production the falling behind of the mining industry. The figures from one of these States may be taken as an example. The average number of men employed in the metal mining and metallurgical industries in the State of Colorado for the 4-year period, 1900–1903, was 36,189; during the period from 1904–1907 this annual number of men employed was reduced to 34,364; and during the 4-year period from 1908–1911 the number of employees was further reduced to 22,560.

Congress is now appropriating, as an aid to agriculture, about $28,000,000 per annum. These funds are distributed through the Department of Agriculture by the aid of nearly 14,000 employees. The relative importance of agriculture and mining to the Nation, and the amounts appropriated for them, are shown in the following tables taken from the report already mentioned:

WHAT THESE TWO BASIC INDUSTRIES DO FOR THE NATION.

Item.	Agriculture, including forestry.	Mining and mineral industries.[1]
Number of employees	13,000,000	2,300,000
Yearly value of products	$10,500,000,000	$4,600,000,000
What each worker in these industries contributes to the national wealth yearly	$800	[2] $1,800
What each industry contributes to the freight tonnage of the country yearly, per cent	22	60

[1] The scope here includes mining, metallurgical and other mineral industries, as does the work of the Bureau of Mines.

[2] Exclusive of the value of the minerals and ores as they occur in the ground.

WHAT THE NATIONAL GOVERNMENT IS DOING FOR EACH OF THESE INDUSTRIES.

	Yearly appropriations.	
	Agriculture.	Mining.
For education:		
For direct appropriation	$2,500,000	(1)
For land grants	1,030,000	(1)
From Smith-Lever Act for demonstrating educational work	[2] 480,000	(1)
For 52 experimental stations, one in each State and Territory	2,550,000	(1)
For general researches and other work to aid agriculture and mining	22,410,000	[3] $1,967,000
	27,970,000	[3] 1,967,000
Per capita contribution from the people of the United States for the advancement of these industries	0.28	0.02

Of this contribution, the per capita expenditure for safeguarding the lives of 2,300,000 employees in the mining industry is about ½ cent per annum.

[1] Nothing.

[2] $480,000 for 1915; increasing to $4,580,000 for 1925 and each year thereafter.

[3] Of this amount, less than $500,000 is expended under the Bureau of Mines in behalf of improvement of safety and health conditions among the 2,300,000 employees in the mining industry; of the remainder, about $1,300,000 is expended for geology, topography, water powers, and other problems having to do with the commercial side of mining and other industries, under the Geological Survey; and $135,000 is expended under the Bureau of Mines for the commercial testing of the coal and oil used by the Government.

Nothing can show the relative national neglect of the mining industry more clearly than does the above tabulated statement; and this neglect is all the more difficult to understand in view of the hazards of that industry and the other conditions that should appeal to the humanitarian as well as to the commercial instincts of the American people. But another fact that tells the story with equal emphasis is that during the past 10 years, in addition to the large sums paid out of the National Treasury for the benefit of agriculture, as indicated above, and the payment toward the reclamation of agricultural lands in the Western States of all funds arising from the sale of public lands in those States, even the proceeds of the sale of the Nation's mineral resources in like manner have gone, not to aid mining, but to the reclamation of additional lands.

From these statements it appears that the mining industry is justly entitled to more liberal and direct support from the Federal Government. Aside from this fact, however, it is desired at the present time to advance some of the reasons why mining should be assisted in the near future by a change in the laws which affect the location, discovery, and possession of mining property. The law at present in force was enacted in 1872, and although it has been amended in a few particulars from time to time, the system of mineral-land law which prevails to-day is substantially that which was deemed best for conditions existing nearly half a century ago. In no other department of Federal regulation and control has there been such backwardness in changing the statutes to conform with the great changes that have arisen in our national industries within the past 50 years.

The method of acquiring possession of mineral lands and deposits, and the character of the title conveyed vary in different countries. It has been recognized for centuries that the discoverer of a valuable deposit of ore is entitled to recognition and pecuniary reward. The importance of mining has induced governments and monarchs to bestow special favors upon those of their people who have increased the metallic production of their lands. In this way a separate form of title has arisen, based upon custom and expressed in statutes, different in character from those pertaining to real estate. Some countries have adopted the principle of government ownership of minerals, giving to the mine operator only a lease or some form of temporary possession conditioned upon constant operation of the mines and revocable for failure to observe the required conditions. Most countries exact some sort of title, or royalty, or bullion tax upon the output. The right is frequently given to the prospector to enter upon the domain of others, under certain requirements and limitations, and to prospect for and mine the ores contained beneath the surface of privately owned lands. In the United States no such right is recognized.

The laws we are here to discuss concern primarily only the deposits of minerals upon lands owned by the Federal Government, although it is none too soon to think about the public interest in the minerals on privately owned land. It is not sought to make such changes as will in any way affect titles already in existence. The mining men of this country find themselves seriously hampered in the operation of their properties by certain provisions of the present law. They are aware of the fact that one-third of all the public domain which formerly belonged to the Federal Government still remains in its possession, and they desire, for the benefit of the future miner and for the interests of such mines as are certain to be discovered upon this remaining one-third, to induce Congress so to modify the Federal mining laws as to encourage development and protect the mine owners.

This is a subject which is of direct and vital interest primarily to the people of the West, but secondarily to the entire country, inasmuch as every industry is more or less dependent upon the successful and continued operation of our mines. It does not appeal with direct force to the people of the East because there are few Government lands remaining in the Eastern States, and because the mineral-land laws apply only to certain parts of the mining States of the West. It would probably surprise many to know that there are constantly from 6 to 10 or more important and expensive apex suits pending in our courts. It might be still more surprising if the statement were made that the direct cost, to say nothing of the loss of time, labor, and profits, of a single one of these lawsuits is frequently more than one-quarter of a million dollars. There is a factor of hazard, loss, and expense, of uncertain importance, hanging over every mine investment wherever the apex law is in force. No attorney or mining engineer can safely recommend the purchase of a quartz mine in the West, no matter how carefully the chain of title may be scrutinized and approved, without taking it into consideration. Indeed, the whole business of mining is hampered and forced to carry the burden of this dangerous provision in our present law.

Other defects of the statute now in force have been pointed out in communications to the engineering societies and to Congress. Presidential messages have frequently urged changes in our statutes; Secretaries of the Interior have called attention to the importance of the matter in their annual reports; committees of the Mining and Metallurgical Society of America, of the American Institute of Mining

Engineers, of the American Mining Congress, and of other organizations of mining men have again and again demanded from Congress some modification of the present unsatisfactory laws. It is for the purpose of presenting a united front at this time, and impressing upon our lawmakers the fact that there is a widespread need for relief, that the present conference has been called.

The revision which we ask should be far-reaching in its results. It can be readily understood that any industry from which is derived, directly or indirectly, 60 per cent of the freight traffic of all of our railroads is one which concerns every laborer, merchant, farmer, and professional man. If the prosperity of our railroads is a gauge by which to measure that of the country in general, no profound understanding of political economy is needed to enlist our interest in the country's mining industry. Indeed, without elaboration we may say that mines are needed:

1. For the promotion and maintenance of national trade at home and abroad.
2. As indispensable elements in preparation for national defense, both now and far into the future.
3. For the steady employment of laborers which, as already shown, are more than twice as productive as the average farm workman. And in this connection we must not overlook the fact that the vast number of men employed on railroads and in manufacturing plants of nearly every description are as dependent upon the continued operation of mines and smelters as the miner and smelter man himself.

Favorable mining laws and conditions are also essential for the expansion and development of our Territories and insular dependencies. Indeed, some of them, such as Alaska and the Philippines, have been stunted and almost strangled by bad mining and land laws or by improper administration and enforcement of those which happened to be good.

Let us now consider briefly just why the mining men complain of the present laws.

In the first place, it is because the country has outgrown them. Conditions have changed; mines are no longer easily discovered. What was at one time the occupation of a handful of men has become the pursuit of many. An industry which yielded a gross value of perhaps $300,000,000 in 1872 now adds nearly $5,000,000,000 annually to the Nation's wealth. Inded, during the first century of its existence, the production[1] of the United States, as companred with that of a single decade now, was, roughly, as follows:

	1775–1875	1905–1914
Gold	$1,332,700,000	$891,000,000
Silver	$261,450,000	$344,790,000
Quicksilver . . . flasks	840,000	211,000
Copper . . . tons	200,000	4,770,000
Lead . . . do	855,000	3,320,000
Pig iron . . . do	40,000,000	250,000,000
Anthracite . . . do	351,521,000	726,000,000
Petroleum . . . barrels	76,594,600	1,175,700,000

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[1] Abram S. Hewitt: A century of mining in the United States. Trans., A. I. M. E., vol. v, p. 171.

In fact, in a single year we now produce more copper and petroleum, to say nothing of zinc, aluminum, cement, bituminous coal, coke, sulphur, and phosphates, than in the first hundred years of our national history; and of many other products we are now producing at a vastly accelerated pace. It is only within the past 20 years that we note a declining tendency. But the symptoms are serious enough to demand attention.

Then, too, the character of the mines now workable by modern processes of mining and reduction is not such as that contemplated by the framers of the law of 1872.

The most important gold-mining developments at the present moment are in low-grade disseminations through schists and eruptive rocks, such as were never dreamed of by those who framed the law of 1872. Indeed, the Homestake, the Alaska Treadwell, and neighboring properties in Alaska, the majority of the mines at Leadville, the mines of the Kendall district, Montana, and of many other gold and silver districts in the United States, to say nothing of those in other countries, are so different from the deposits for which the law was created that only by a wide stretch of both the law and the imagination have they been brought within its provisions.

The same is true of copper mines. How many of those developed within the last 15 years conform to the idea of the law of 1872? Not Ely, nor Bingham (although in both places there are also found true veins), nor Ray, nor Chino, nor Miami. Here, and in other districts, the owners of the mines have found it necessary, by mutual agreements, to set aside the apex provisions of the law. But my point is here simply that all these great mines present features which place them entirely outside the category of deposits contemplated by Congress at the time the present law was enacted. And if the northern State of the Mississippi Basin had not fortunately been excepted from the operation of this law, then we might have had the copper-bearing amygdaloids and conglomerates of Michigan, the iron-ore beds of Michigan, Wisconsin, and Minnesota, and the galena-bearing limestone strata of Missouri and Kansas also locatable as mining claims.

The present law is further objected to because it discourages prospecting. This is, perhaps, the most serious charge that can be brought against it. Indeed, if proved, it is alone sufficient to justify the demand for revision. Traversing again ground already covered in this connection elsewhere, let us for a moment consider the changes that have come about in the West during the past 40 years. In the sixties and seventies there were but imperfect maps; no geological surveys, no published records or data competent as guides for the prospector. The great West was boundless and inexhaustible, mysterious and alluring. It contained mines of wealth untold, and anybody could find one by diligent search. So, with his pick, prospector's pan, and pack train, the pioneer searcher for fortune betook himself into the heart of the wilderness. And wherever some one, luckier, sharper of vision, or more industrious than his fellows, chanced upon an outcrop, there he made his location, and to that spot was promptly followed by scores of others. And they, turning over the soil, or working the golden gravels, or trenching the surface débris, also found outcropping ledges and staked out their locations; and a camp was established. And when so many gathered together in one camp that rules for their conduct were needed, including public recognition of the individual's right to the fruits of his discovery, then a meeting was held, a mining district was organized, and rules were adopted; and these rules had the force of law. The mines were in their infancy, depth had not been attained, and the only definite feature of many a claim was the outcropping lode or "discovery." In that way, and for that reason, a discovery was made the sine qua non of a valid location; and this provision, universally adopted by the mining districts, was incorporated into the laws of 1866 and 1872. It worked well for a time. Mines, or at least veins, were easily discovered; and until a prospector had found one he seldom cared to stake a claim. But soon it was found that value attached to quartz locations in the vicinity of good mines, even without a discovered vein, and many locations were made on barren country rock. Moreover, the land-office officials were complaisant, and had no means of ascertaining the truth or falsity of the affidavits of discovery; hence, claims were often patented upon testimony to the expenditure of the required amount in development work, although no vein had ever been discovered.

As the West became settled and threaded with railroads two gradual changes accomplished results of startling and vital importance to the miner. In the first place, it became exceedingly difficult to find any more outcropping lodes. All the typical quartz veins carrying gold, silver, etc., were located—at least all whose "iron hats" compelled attention. No longer could a prospector and his "pardner," with a burro and a two-month grubstake, find half a dozen promising ledges, and sell their location for a year's wages. In the second place, Uncle Sam woke up and said the law required a discovery of valuable mineral in place, and a mining claim was not valid until mineral had been found; and began sending out inspectors and special agents, and Forestry Bureau employees and others to ascertain the character of these discoveries. Then for a time, a good long time too, the prospector was looked upon as an interloper, a rogue, a land thief, who was presumed to be guilty of perjury until he proved his good faith. Unable to stand against these two discouraging obstacles, the increasing difficulty in finding unlocated lodes, and the expense of defending contests brought against him by relays of Government agents, the prospector threw up his hands and practically disappeared; either went out of business or moved to some more salubrious clime where inspectors cease from troubling and the weary none contest.

This idea that a discovery is necessary before a claim can be staked is one of the most persistent of the traditions of antiquity. It harks back to the days of feudalism and appears in the earliest writings on mining. Thus, in the first printed version of the mining laws of a portion of Germany, published in 1519 and referred to as "the common mining law descended from antiquity," a discovery of ore is required before a claim can be surveyed, and the measurements are made from whatever shaft or pit is claimed as the "discovery." "And if one can not agree as to his mining right, how far it goes or where it turns, it shall be thus decided":

> One shall take a basket and in it lay a pick, a Kratz (pointed hoe), a hammer, and 12 irons, and shall hang it on a rolling tree (windlass) and let it run of itself; and as far as one may hear it, thus far is my lord's jurisdiction.

This is quite as definite as some of the rulings of the courts on mining rights to-day.

The same idea of discovery before location is found in the laws of many countries which permit prospecting upon the domain of the sovereign or upon private lands. Thus Lindley, author of a celebrated treatise on mining law, remarks:[1]

> Discovery in all ages and all countries has been regarded as conferring rights or claims to reward. Gamboa, who represented the general thought of his age on this subject, was of the opinion that the discoverer of mines was even more worthy of reward than the inventor of a useful art. Hence in the mining laws of all civilized countries the great consideration for granting mines to individuals is discovery.

The point which I wish to make is that while it is eminently proper to stimulate the prospector and to reward him for finding mines, it is no longer reasonable to require of him that he shall have actually found ore in place before he sets his stakes to mark the ground on which he is willing to expend his money and labor in the effort to find it.

The discovery of mineral deposits is no longer an incident of a summer vacation. The prospector of the future must possess more expensive equipment, greater technical knowledge, and a larger exchequer, and his operations must perforce be conducted through shafts, tunnels, and drill holes, in some instances taking years of diligent and well-directed effort. The requirement of a discovery before location and antecedent to the granting of any exclusive possessory title is therefore not only irksome and deterrent of results in practice, but wrong in principle.

The laws of most countries recognize the fact that ore deposits are subterranean and in many cases only to be found by digging, and in thus reversing the natural order of things we are conspicuously alone.

From a rather intimate personal knowledge of conditions in the mining regions of the West I am prepared to assert that there is a serious decline in prospecting and in the discovery of new mines. It should be constantly kept in mind that mines are not like farms or water powers. They will not and can not "go on forever." They are like money on deposit in a bank without interest. When mines are worked to their fullest production and efficiency they are exhausted sooner than under the old systems of operation. And when once exhausted new mines must be found to take their places or else business declines.

We should also bear in mind the fact that if our commercial prosperity arises in large part from our ability to supply the world with the manufactured products of our mines, just so soon as those products are no longer available will our foreign trade and home manufactures fall into a state of inanition. As a country we occupy about 6 per cent of the continental land area of the globe; as a people we have about 6 per cent of the world's population; and as a nation we are producing about 36 per cent of the minerals of the world. Is this not food for reflection? Do we not see deserted and exhausted mining camps in every State of the West? Do we not know that new mines are not being found to replace those which are dead or dying? If not, give ear to this clipping from the Boston News Bureau of December 9, 1915:

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[1] Lindley on Mines, Third Edition, par. 335.

> Canadian Mining and Exploration Co., which is liquidating, was organized in May, 1912, by the largest banking interests in New York and Canada to investigate and exploit mining and other proposed enterprises. Since organization it has investigated about 1,500 mining propositions without finding one good enough or large enough to warrant financial promotion.

Think of it! A company with millions of capital, with a corps of trained men, can not find one good mine in three and one-half years, although they searched and scoured the country from one end to the other. And look at all the other exploration and development companies. They have almost abandoned the United States and are now employing men and spending their money in Mexico, Central and South America, in Russia and Siberia, in India and Africa. And shall I tell you why? It all comes down to that clause of our law requiring discovery before location; it all results from the discouragement and disappearance of the plodding, patient, often visionary, often disappointed but occasionally successful prospector. Give him exclusive possessory title before discovery, furnish him with sympathy, encouragement, and even actual financial aid instead of suspicion, contempt, skepticism, and active antagonism and he will find new mines for the restoration of our declining mining industry.

The feature of our present law most strongly condemned by mining men is that known as the "apex law," by which the miner is given the right to follow veins on their course downward beneath the surface of the land owned by others. This has been already referred to, but deserves further consideration. Opposition to it is almost universal. The opinions of many representative men appear in the bulletin of the Mining and Metallurgical Society and in the Transactions of the American Institute of Mining Engineers, and copies may be had by those interested.

This hoary, antiquated, trouble-breeding license to trespass on a neighbor's territory, whose origin is lost in the mists of the Dark Ages, has been abandoned by many nations. The Germans tried it for hundreds of years and gave it up because it led to so much litigation; it passed over to England and had vogue for a time in some districts; there was a trace of it in old Spanish laws; Sweden adopted it; also British Columbia and the United States. But with the single exception of Rhodesia, we are the only people foolish enough to keep it in this day of enlightenment and progress. Even Rhodesia is trying to do away with it, and we may soon stand alone in our glorious obstinacy to reason and reform.

Mr. A. Montgomery, State mining engineer of Western Australia, in a letter to me says:

> The lateral-rights principle obtaining in portions of the United States is a standing marvel to the rest of the world, and that it could be seriously proposed to perpetuate it outside of cases in which it has unfortunately been already granted seems incredible to most outside engineers with whom I have come in contact.

I should like to read also a letter from Hon. W. H. Dickson, of Salt Lake, one of the most celebrated and experienced mining attorneys of the country.

> I have long been fully persuaded that the act of May 10, 1872, in so far as it relates to mining locations on veins, lodes, or ledges containing precious or

valuable metals, should be so amended as to confine the locator of all locations thereafter made within the surface boundaries of his claim extended downward vertically. The right conferred upon the locator by the present law to follow his vein in its downward course beyond a vertical plane passed through the side line of his location has, as we all know, proved to be the prolific mother of vexatious and most burdensome litigation, to the serious detriment of the mining industry. I am satisfied that I am well within the mark when I say that the expense of litigation which has hitherto arisen is in excess of $200,000,000. We know that in very many of these cases the expenses of necessary so-called litigation work, plus the fees of lawyers and learned expert mining geologists, runs into the hundreds of thousands of dollars. The statute has now been in force nearly forty-four years and notwithstanding the great multitude of litigated cases that have arisen out of it, its true meaning or interpretation is still unsettled as to many questions.

For instance, there is now pending in the courts a case involving the question whether a vein or lode found in the form of a single anticlinal fold has any op or apex, within the meaning of the act; whether one who has made a valid location covering the crest or axis of such a vein or lode has the right to follow either limb or side of the vein in its downward course beyond vertical planes drawn through the side lines of his location. The question involved is an open one, never yet having been passed upon by any court.

Again, there is a case pending in which eminent counsel earnestly contend that if in a lode claim (running, we will say, in an easterly and westerly direction) there are found the tops or apices of two veins, one, the discovery vein dipping northerly, the other, the secondary vein, dipping southerly, the locator is not entitled to pursue the latter vein in its downward course beyond his side line. This, also, is still an open question.

Again, we will say that the only vein, the top or apex of which is found within the location on its course, enters and departs from the claim over the same side line. Has the locator the right to follow such vein in its downward course extralaterally between planes drawn through the points where it so enters and departs from the claim parallel to the located end lines thereof, or has he intralimital rights only upon the vein? This, also, is still an open question.

And yet again has one, who has made a valid location covering the top or apex of a vein found on the public domain, the right to follow the same in its downward course extralaterally beneath the surface of a previous agricultural or townsite patent? There is no authoritative decision on this question and there are now pending in the courts two cases in which it is directly involved.

The foregoing are some of the questions of law yet undetermined. Doubtless there are many others. But if every question as to the true interpretation of the act and its application to any and all conditions, to every state of facts which might be established, were finally settled it would not greatly curtail the volume of litigation arising out of it. The controverted question of fact as to the continuity of the vein in its onward and downward course would continue to prove an endless source of litigation involving the expenditure of large sums of money.

I suppose there never yet has been found a vein or lode which contained ore of commercial value throughout either its length or its depth. In the vast majority of cases, the area of the vein found to contain no ore of commercial value largely exceeds the area that may be profitably worked. The owner of the vein, in the development thereof, does not throw away his money in exploring the practically barren areas. By his enterprise and the expenditure of a large amount of money he has succeeded in developing a mine of great wealth; but in following his vein in its downward course, as soon as he reaches or passes beyond the side line of his claim beneath the surface of an adjoining location, possessed by his neighbor, he becomes involved in litigation and is at once enjoined from the further development of his property in that direction. To defend himself successfully against such suit, however unmeritorious it may be, he must now incur the expense, however great, of running all such drifts or levels, upraises or winzes as may be necessary to prove that the continuity of his vein on its onward and downward course is such as to entitle him to follow the same extralaterally. The necessary expense of such work (which usually does not add a dollar of value to his mine), coupled with the fees of experts and lawyers, may be so great, and often is, as to make it a matter of business prudence for the owner of such a vein to purchase the property of his neighbor at an exorbitant price or to compromise a suit which had no foundation in justice but was bottomed in blackmail.

On the other hand, the owner of a mining claim, by his energy and enterprise, has developed large and valuable ore bodies beneath the surface thereof, which excites the cupidity of the owner of an adjoining claim, who at once commences suit alleging that these ore bodies lie in or belong to a vein which has its top or apex in his claim, and so traverses the same as to give him the right to follow the same extralaterally to and including the ore bodies thus put in controversy. I know of one such case where the witnesses for the plaintiff, who was asserting extralateral rights which would include the ore bodies developed by defendant beneath the surface of his own claim, conceded that in passing from the alleged apex of the vein in plaintiff's claim you had to pass (for the greater part of the length of the claim) through more than 300 feet of absolutely barren country rock in order to reach the ore bodies in controversy. The case had to be twice tried and was carried not only to the supreme court of the State, but to the Supreme Court of the United States, the litigation covering a period of more than nine years. Defendant's ownership of the ore in controversy was finally established, but in the end it was practically a barren victory, for the expense of the litigation was fully equal to the net value of all the ore in dispute.

The statute opens the way to blackmailing litigation and has sometimes resulted in it. I know of many cases in which eminent experts have been employed by the respective parties to litigation of this character, witnesses whose integrity and ability were beyond question; and while there was rarely much conflict in the testimony in any of these cases respecting observable facts, yet I know of no case where these experts did not arrive at diametrically opposite conclusions respecting the true interpretation or deduction to be drawn from the facts. Thus we see how hazardous is the situation of the miner carrying on his operations under the existing law. It is a constant menace. The value of property the title to which is involved in such uncertainty is of necessity greatly depreciated. Moneyed men and would-be investors are thereby deterred from purchasing such properties and from investing money in the development thereof.

The discoverer of veins or lodes containing valuable metals, or he who invests his capital in the development thereof, should be encouraged by the law, as such encouragement leads to the development of the mineral resources of the Nation and promotes general prosperity. Hence, if the law should be so amended as to abolish the so-called extralateral right, the locator of a mining claim, in my judgment, should be permitted by his location to embrace a larger surface area than is permitted under the present act—I should say not less than 1,500 feet square; and if his location is based upon a vein actually discovered at its top or apex, he should be permitted, at his election, to embrace within his location 750 feet on either side of the top of the vein or his entire 1,500 feet in width on the one side or the other thereof (but, of course, covering such top or apex). He should be given also the ownership of all other veins or lodes, or parts or portions thereof, found within its surface boundaries extended downward vertically.

I think the present statute should be amended in another respect. A valid location under the present law can not be made until the would-be locator has discovered rock in place carrying gold, silver, etc.—that is to say, the top or the apex of a vein or lode. In many of the most important mining districts in this and other States it is impracticable honestly to comply with this provision of the law. For instance, in the Tintic mining district in Utah, which covers an area several miles square, and which has yielded, as I am informed, more than $200,000,000, there are found only a few places where a vein outcropped or even reached on its upward course at all near to the surface—I think not more than five places in all—and in each of these the exposure was confined in a very limited area. In many of the mines which have there been developed and which have proved very profitable, the top of the vein was from 100 to 400 feet beneath the surface, all above that being barren limestone, practically barren of vegetation, apart from a scrubby growth of pine and cedar. Like conditions as to the absence of outcrop and depth beneath the surface of the tons of veins or lodes exist in the great mining district near Park City. This also is true of the Tonopah mining district and the Goldfield mining district in Nevada. From your extended experience you doubtless know of many other important districts where like conditions prevail.

Further arguments and opinions against this section of the law of 1872 could be adduced almost without limit. The fact that mining men set it aside by mutual agreement wherever conditions make it possible to do so, and that hardly a voice is raised in its favor, seems enough to persuade Congress to repeal it and thus protect at least those mines which will be discovered in the future on the 620,000,000 acres still belonging to the Federal domain.

When listening to the arguments of learned attorneys and expert witnesses in apex cases I am frequently reminded of the Chinese mining regulations of 1907, which provide as follows:

> Any graves on the mining area must be respected and protected, and no mining works must be carried on within a certain distance from them. The distance from any imperial tomb or tomb of any sage must be at least 300 li (more than 100 miles), that from the tomb of a mandarin must be 5 li (nearly 2 miles), while that from the tomb of any formerly noted statesman or official must be a li (1,894 feet), and from that of ordinary persons 500 feet, and this limit must not be encroached on either above or below ground.

Nor may any shaft be sunk deeper than 500 feet for fear of letting out all the devils. The devils of apex litigation are turned loose from many a shaft less than 500 feet in depth by our ingenious law.

Another important defect in our present law, to which the attention of Congress has frequently been invited, is a lack of any provision for appeals to the courts from the decision of land-office officials. It is contrary to the general spirit of our institutions, and an anomaly in constitutional government, to take away from any citizen property rights to which he considers himself justly entitled under the law, by the mere fiat of an appointed Government official, who is here to-day and gone to-morrow. To place in the hands of such officers the final dicta in matters involving property valued at hundreds of thousands of dollars and to provide no method of appeal to any duly constituted, permanent, nonpolitical, judicial tribunal is not only to subject the said officials to severe and unnecessary tests of moral courage and fidelity, but to require in them the qualifications of superior judges and experience in the weighing and interpretation of the law, which many of them can not be expected to possess. Serious injustice is often done without any remedy at law to the defeated applicant.

The celebrated Cunningham coal cases in Alaska are a concrete instance of maladministration of justice and the infliction of obloquy and financial loss upon perfectly reputable and law-abiding citizens by the decision of political appointees, who were forced by the stress of political expediency to render verdicts justified by neither the law nor the evidence, and from which there is no recourse. In the interests of justice, provision should be made for appeals in important cases, and, perhaps, in all cases, from rulings of the Commissioner of the General Land Office, or of the Secretary of the Interior, to some court of competent standing and jurisdiction, whose decisions could and would be accepted by the public and the interested parties with confidence in their just and correct interpretation of the statutes. The enactment of such legislation was specially recommended to Congress in a presidential message by William H. Taft, but it failed of passage largely through the misguided opposition of the chief apostle of conservation. It should be brought up again, and insistently, until placed upon our statutes.

There has been much difference of opinion as to whether petroleum and natural gas are minerals.[1] The courts, with few exceptions, have held that these substances are minerals and are locatable as such. The Land Department has been on both sides of the question, but the matter is finally set at rest by the act of Congress, which reads as follows:

> Any person authorized to enter lands under the mining laws of the United States may enter or obtain patent to lands containing petroleum or other mineral oil, and chiefly valuable therefor, under the provisions of the laws relating to placer and mineral claims. (Act approved Feb. 11, 1897, 29 Stat. L., 526.)

Being locatable under the placer act, such lands are subject to the requirement of a "discovery" before a location can be perfected; and since, as already explained, the law gives no exclusive possessory right to the prospector while he is searching for mineral (except of the spot where he is actually at work, *pedis possessio*) there have been numerous instances where two or more outfits have been drilling on the same tract of land, each trying to make the first strike of oil and thus secure possession, and bloodshed has not infrequently been narrowly averted as a result of this feature of our senile law.

There are still other substances which should be provided for, and which were either not known to exist or not considered as valuable minerals in 1872. Among these substances we may mention radium-bearing minerals, phosphates, potash, and others salts, rare earths, and similar products, all of which are likely to prove of increasing importance and value in the future, and for the location and exploitation of which careful provision should be made in our laws.

From the very first the law has been defective in not requiring notice of mining claims to be filed with the General Land Office or some duly constituted Federal officer. Uncle Sam has been a very careless custodian of the property of his wards.

> Indeed, the United States Government does not to-day possess either records or maps showing what portions of its public mineral lands have been appropriated by valid mining locations, and, being held under possessory title, do not now belong to that domain.[2]

Again, the law at present provides a limit to the time within which patented quartz claims may be attacked for fraud or irregularity of location, but makes no such provision for patented placer claims. Known veins within placer locations must be declared and paid for separately; otherwise, they are excepted from the placer patent and can be located by others in lode claims. All veins on placer ground not known to exist at the time application is made for patent belong to the grantee, but without extralateral rights. If an applicant for placer patent can be shown to have had knowledge of the existence of a valuable lode within his lines prior to the making of his patent application, and to have concealed that knowledge, his title as to that vein is subject to cancellation at any time upon the making of proof thereof in court by a contesting locator. There is no limit to the time for such contests, and they are still being brought, in some cases 25 years after placer patent. The law is very defective on this point, for it frequently happens that veins discovered to-day have a value by reason of improved metallurgical processes or transportation facilities which they did not have at the time when the placer claim was located and patented. The owner of such a claim is sometimes put to the expense and annoyance of defending such contests repeatedly, each time at the risk of an adverse verdict, since there is no limit to the number of contestants. The law should provide the same protection for placer as for lode claims in this respect.

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[1] Snyder on Mines, Vol. I, p. 284.

[2] Raymond. Trans., A. I. M. E., vol. xiii, p. 617.

The present statutes are defective also in permitting the location of an unlimited number of quartz claims in any district, and in not requiring actual and useful development. Many promising mining claims, and even entire districts, have been smothered for years by this practice. Much has been said and written about it, and every old-timer knows that the assessment work on thousands of claims which for a quarter of a century have been thus held (and by the other familiar trick of relocation of each other's claims at the end of the year on a sort of community basis), has often amounted to no more work of actual exploration than could be done by a couple of able-bodied single jackers in three months' time. And anyone who has bought mining claims in the older camps of the West can testify that he has often paid considerable sums for locations of this sort, although the physical condition of the property was in itself incontestable proof that the claims were at that very moment open to relocation or could be successfully contested at much less expense.

Considerable progress was made at the last session of Congress toward an investigation of this whole question. The Committees on Mines and Mining of the Senate and House of Representatives gave the matter earnest consideration and made favorable recommendations. Indeed, the Smoot bill providing for a commission to draft and revise the laws, after investigation of the conditions in the different mining sections, passed the Senate, and the Taylor bill was recommended for passage in the House. It failed of passage apparently for lack of attention, but there does not appear to be any serious objection nor any reason why the matter should not be taken up and finally passed at the coming session of Congress. The mining men can not believe that their needs and their wishes will fail to meet with the attention of Congress, and they come here with the confident expectation that the interests of the mining industry and the importance, to the entire community, of its protection and encouragement will be recognized in the enactment of the desired remedial legislation.

There is an old story of King Midas who was at one time exhibiting with pride the golden treasures of his vaults and the means devised for their safeguarding to the philosopher Solon. Although greatly impressed by the stores of gold and the strength of the vaults, Solon wisely remarked: "Midas, the man who has possession of the iron of the world will some day be master of all your gold." The United States is to-day in possession of not only the iron but of all the varieties of metals useful in gaining possession of the world's gold. Can it be that our National Legislature will not recognize the opportunity and provide us with the very best possible laws under which to expand and develop an industry upon which our national prosperity so largely depends?

The CHAIRMAN. Mr. Winchell's exposition has been illuminating. I used to live in Colorado and there was no agricultural industry, no raising of sugar beet in those days; everybody was engaged in mining, and at that time everybody could qualify as a mining expert. We have one with us to-night who can qualify in both respects—as a mining expert and as a legal expert. In the earlier days of Colorado that State had its share of apex litigation, perhaps more than its share. Even now it has occasional cases, and in the trial of those cases there was no one who played a more prominent part than Senator Charles S. Thomas. Senator Thomas has kindly consented to speak to us to-night.

Senator THOMAS. Your presiding officer referred to me as having had experience which should have resulted in the production of a mining and legal expert. I think the same may be said of that class of mining engineers who have given their time and attention to the consideration of the geology of the metalliferous States of the Rocky Mountains, because the discharge of their duties as engineers required an intimate acquaintance as well with the mining laws and the decisions construing, or assuming to construe, them.

The last speaker is a type of that sort of engineer. I have known Mr. Winchell for a great many years. I have long known of his devotion to the subject which he has just elaborated so intelligently, and as you have heard from one of these combination mining and legal experts, who has exhausted the subject for you, I can do but little more to-night than repeat or elaborate upon what he has stated so much better than I can.

He has, to my mind, demonstrated not only the wisdom, even at this late day, but the necessity of a radical change in the mining statutes of the United States, and the reasons which he has given for it can only be emphasized by the additional illustrations of which copious instances exist. I have been somewhat familiar with the act of 1872 ever since it was passed, and have lived before and afterwards in one of the most prominent mining States of the West, whose courts have attempted, with questionable success, perhaps, to apply that statute to the varying physical conditions presented in many mining controversies, involving problems not dreamed of in previous mining philosophy. I came to the conclusion, way back in the early seventies, that the system was based not only upon one, but two or three false principles, and that the time would come when fundamental changes would be enacted and the law made to conform with our ordinary notions of the rights of property. But notwithstanding Congress has from time to time had its attention called to these difficulties, to the need of change, 45 years have elapsed, with but comparatively little alteration of the original act. It was based upon the customs of miners, the outgrowth of their experiences in California, Nevada, Montana, and Idaho, and to some extent in Colorado up to that time, those experiences having developed into a sort of common law of mining which fitted the exigencies of those days and those times. There were very few overlapping locations then, because the man making locations in those days either defended his possession successfully or lost it in the good old primitive way.

Questions of extralateral right were then largely determined, but not entirely so, along the same lines, and with much more justice in the long run than those which have since been determined by the accepted methods of civilized procedure. [Laughter.]

Now it is a principle which is not only dictated by logic and common sense, but which has behind it the sanction of centuries, that the ownership of real estate is bounded not only upon the surface, but above and below, by vertical boundaries. Hence the new principle which recognizes the right of A to invade or go beneath the land of B in pursuit of his vein, and extract ores therefrom, shocks the sense of justice of the average individual, and the difficulty of convincing the average man that the right is a just or equitable one has been too much for the jurymen of the West during the past 44 years. Hence, as is well stated by Judge Dixon in the letter which was read to you, the law of the apex—if law it may be called—is as uncertain, as unsettled, as confused, and as difficult to understand to-day as it was way back in 1877, when the Eureka-Richmond case was decided by Justice Field, of the Supreme Court of the United States, it being, as I remember, the first case construing that section of the statute after its enactment; and every subsequent decision of the courts upon this subject, upon this section, instead of clarifying has but augmented the confusion to which Mr. Dixon refers. In the last apex case I ever tried, the effect of the decision was to confer upon a man who committed perjury in the patenting of a claim, located without any discovery whatever, greater and more extensive extralateral rights than to one who acquired his claim by full and conscientious performance of all requirements of the law. That unfortunate result followed my unsuccessful attempt to defend it, relying perhaps too much on the engineering support of my friend who has just addressed you. [Laughter.]

I need not say that I refer to the case of The Doctor Jack Pot Co. *v.* The Work Mining Co. This is one of the absurd though unjust points of a statute giving the right of one man to enter upon the territory of another. Of course, the decision was an extreme one. Another peculiarity about that case was that the unfortunate owner of the premises upon the dip of the vein was the man who discovered it, and he discovered it from below by means of a tunnel which had been projected through his ground some time before, and which gave him a right of entry several hundred feet from the surface. He discovered the vein from that level. He worked upward upon it until the vein reached his eastern boundary line, where he stopped. Then the owner of the property, which had been patented without any discovery at all, suddenly awoke to the fact that the apex of this mineral was within his property, and he not only succeeded in establishing his title thereto, but also obtained a judgment against its unfortunate discoverer for damages in so large a sum that his entire property was not sufficient to satisfy it, and so he has long since gone to the wall.

In Leadville we have a peculiar mineral formation known as "blanket veins," where the owner of an apex, if he had any rights at all, would take the entire country, because of the gentle declivity of the veins into the surface of the earth. The dip of these deposits below the horizon never exceeded 13 or 13½ degrees. There the people met the situation by repudiating the law and refusing to enforce it. That, of course, is not very pleasant practice, and one which does not tend to increase or extend that respect for the law which all good American citizens should entertain, but it was largely the salvation of the camp, and from 1879 such a thing as a verdict in favor of an apex claimant in that camp has never been known, notwithstanding the fact that the law is applicable as much to a formation of that sort as to any other, the angle of the dip being, as you know, entirely inconsequential. I do not know that the repeal of the statute now and a substitution of something else would be productive of any great amount of benefit to the miners of the West, and yet, in the event of further discoveries, it certainly would be. It can not, as you know, be amended so as to operate retroactively, but much can thus be effected by way of encouraging future prospecting, to assure the man who makes a location that, whether good, bad, or indifferent, it will be his. It may be an ill-favored thing, but his own, and in that respect, independent of any other consideration. I would welcome the opportunity to assist in making the suggested changes.

My experiences as a mining lawyer led me to the identical conclusion years ago which has been expressed here to-night by Mr. Winchell, that the fundamental basis of the enormous number of mining controversies over written locations in mining countries was the fact that our law requires a discovery as a precedent to the location; that it gave these extralateral rights; and that it permitted locations to overlap, that being the direct consequence of requiring discovery as an incident to location.

Now the vast amount of mining controversy—and I am speaking of numbers of actions—has not been apex litigation. They have been the most expensive and the most far-reaching. They have perhaps resulted in a greater proportion of injustice; but the conflicting locations have produced that multitude of cases, a small percentage of which perhaps reach the court of appeals, but whose aggregate has burdened the prospector and locator with an expense almost unbearable. I do not believe I exaggerate when I say that the surface of Cripple Creek district is covered six deep with locations, one after the other, each claiming by right of original discovery, and stimulated by the fact that the original discoverer under the statute is entitled to the property. Smith makes a location. The ground seems to be promising. Jones comes along and makes a location that overlaps it, on the ground that Smith lied when he said he discovered the mineral at the place he, at the time, mentioned in his location certificate. Brown concludes that both are mistaken and consequently sinks a third shaft. He also occupies the whole or part of the same territory. By this time the whole camp follows suit and all make locations accordingly. As a consequence, every claim is overlapped and every claim contested. It is worse than a Chinese puzzle. It has to be straightened out by proceedings in the Land Office, by adverse actions in the courts, or by both, and I need not assure you that the process is tedious, heartbreaking, and expensive.

Another evil consequent upon the law which requires discovery before location, and the section conferring lateral rights, is that they have created a veritable paradise for the blackmailer and the scoundrel. The law has, by virtue of these two sections, offered and occasionally paid premiums to every disreputable individual who takes advantage of their possibilities—and there are many unscrupulous people even in the West. It is easy money, as any miner will tell you, to make spurious locations over valuable claims and compel compromises by the uncertainty and expense of litigation.

The contrast between the maps of mining camps in the United States and of mining camps in Canada which Mr. Winchell has exhibited spells all the difference between fairness, economy, and integrity of location on the one hand and confusion, blackmail, and injustice upon the other. I contend that our mining statutes, in the light of their history, are a disgrace to the civilization of this Republic. [Applause.]

There is another feature of the mining statute which deserves also a share of adverse criticism, and that is the section which provides for location of tunnel sites upon the public domain. These tunnels, as you know, may be extended 3,000 feet in length, and when located they virtually segregate from the public domain a piece of ground 3,000 by 3,000 feet as to all veins not appearing at the surface and not known to exist therein, provided work be done so constantly that there shall be no break of six consecutive months; in other words, consecutive work upon a tunnel site is complied with by doing work to-day and doing work six months, less one day, hereafter. This gives the tunnel owner the right to all unknown veins subsequently discovered within a square 3,000 by 3,000 feet bisected by the tunnel.

You can imagine the potential consequences of a location of that sort in a section of country that is prolific in mineral veins. Take, for example, its effect upon the validity of a subsequent location upon its included surface and made upon a discovery of a blind outcrop. We have had a great many of these tunnel locations in my State, and I recall one in Cripple Creek, dated shortly prior to the discovery of the great Portland vein near its terminal boundary. The fact so imperiled the title to that great property that the owners deemed it prudent to pay a very considerable sum for the tunnel site, good for nothing as it was, in order to secure their property from attack and relieve their title of its menace.

Across this tunnel site was located a lode claim just a few days after its lines were marked. A patent was afterwards issued for this lode claim by the Government of the United States, and in the litigation which ensued between the tunnel owner and the owner of the patented claim the Supreme Court held that every vein along the line of that tunnel not known to exist at the time and not appearing at the surface when discovered belonged to the owner of the tunnel, so long as it was kept alive by performing the required work upon it. The result of that case was to deprive the owner of the patented claim of the identical vein which he had discovered and which was granted to him by his patent. I do not mean to say that the courts declared in terms such to be the result. It recognized the validity of the patent, but the unfortunate fact to its owner was that the vein in dispute was the vein which he had discovered and located. It therefore passed to the owner of the tunnel, notwithstanding the fact that but a few hundred dollars' worth of work had been done upon it when the lode claim was patented. The tunnel section therefore is quite as pernicious, and to my mind quite as objectionable, and affords opportunities for wrongdoing and injustice quite as extensive as the apex section.

Now, the uncertainty of results when such a law is applied to facts prompts some men to take chances and deters others from acting upon apparent certainties. I have known of a great many thousands of dollars eager for investment in mines upon a guaranty of title which retired before the possibilities of hidden or apprehended danger. I know of instances where investments have halted when titles were perfect, but when lateral invasions might result from subsequent underground developments.

No man wants to buy a lawsuit, especially not a mining lawsuit. I heard the judge of the United States Circuit Court for the District of Colorado once say that however valuable a mine might be if it became involved in litigation there was an even chance that in the end its owner would be bankrupt in pocket, in morals, and in reputation. [Laughter.] On the other hand, I have known men to take many and desperate chances because of the existence of these sections, and the uncertainties attendant upon their construction and application to existing controversies.

I once had a client in Leadville, a great big red-blooded Irishman, who owned a couple of claims. He organized the St. Bernard Mining Co. and conveyed the claims to it, and in developing them Mr. Finnerty's exchequer ran very low. Shortly afterwards, however, his mine seemed to be yielding fairly well; his company was evidently in good circumstances—so good, indeed, that a suit for $250,000 damages was brought against him shortly afterwards by the owners of a neighboring property. At the trial the plaintiff proved that my client had crossed his lines, and had taken quite a handsome body of ore from the neighbor's claim and had disposed of it as his own. When asked upon the stand why he did it, he said: "This apex law is very uncertain, anyhow. We was needing money. The ore was there and I thought, therefore, I would take chances and make a forced loan." [Laughter.] Unfortunately the gamble did not, in his instance, prove successful, but they frequently do, and a law which is so unstable, susceptible of so many and such contrary constructions, which tempts the unscrupulous and deters the honest investor, should be revised. If it can not be revised it should be repealed.

This body, by riveting the attention of the country upon the subject, will, I trust, obtain some action by the present Congress. We have a good deal to do, but we are prodigal of our time. The body to which I belong can outtalk any other ten bodies of the same sort in the world. Sometimes it does business and sometimes it does not. We did some things during the 22 months that we were last in session. We could have accomplished all that was accomplished in five and then had time to spare. If we were able to limit what we call debates in the Senate of the United States I could speak quite confidently to-night and give you some assurance that we would be able to revise these statutes, or at least to make a good beginning at this session; but as it is I am unable to say what may be done. We shall simply do our best.

You have one of the best mining lawyers in the United States at the head of the Committee on Mines and Mining of the Senate, a man who has had wide experience and practical experience in the administration of this statute, and a man whose heart is in his work; and I know that if the Senate would coöperate with him as it should the relief which you are demanding, not on your own account, but for the great mining industry of the United States, would be granted by the Sixty-fourth Congress. My hope is that when you shall meet again one year hereafter we will be able to make a report to you which, if not entirely satisfactory, will be encouraging. [Applause.]

The **Chairman**. At Leadville, in the State from which Senator Thomas comes, there was perhaps the best example of the absolute repudiation of the law of 1872—the law of the apex—it was not workable there. The law of discovery was not very satisfactory. They also had more or less litigation over the placer locations versus lode locations. Town-site locations caused an equal amount of trouble, and finally, after the trial of all those things, the people of Leadville said, "We will get along without any law," after which they did pretty well. There are some of our States that have escaped litigation over the law of 1872; some of them have had more or less, and among those that had more of it is Montana. That State is one of the most brilliant examples of the failure of the law of the apex. I wish Congress could have before it a model of the great ore deposits of Butte—a model showing the intricacy of that great system, the criss-crossing veins—and then ask them to tell us how the law of the United States is to be applied to that case. In Butte, however, the best excuse for the law of the apex that I have heard has been offered; namely, that in performing the prospect work necessary for the trial of a costly apex case unexpected ore deposits were sometimes discovered having a value greater than the cost of the litigation; in other words, many veins not otherwise suspected were discovered in the course of this exploring work.

We have with us to-night not merely a distinguished mining lawyer from the State of Montana, but also the chairman of the Senate Committee on Mines and Mining, who is intensely interested in this whole subject. I have great pleasure in introducing to you Senator Walsh, of Montana.

Senator **Walsh**. The law of the apex does not seem to have many friends in this audience, and, that being settled, I am going to devote myself to some other features of revision of the mining laws.

In the opinion in Clipper Mining Co. *v.* Eli Mining Co. (194 U. S., 220, 234), the Supreme Court of the United States quotes with approval the following comment from Lindley on Mines, 167, viz:

> The town-site laws, as they now exist, consist simply of a chronological arrangement of past legislation, an aggregation of fragments, a sort of crazy quilt in the sense that they lack harmonious blending. This may be truthfully said of the general body of the mining laws.

To mention revision of the mining laws will ordinarily prompt in the mind of a lawyer concerned with such, and perhaps in the mind of an engineer whose activities are supposed to be regulated by them, reflection on the wisdom or unwisdom of abolishing extralateral rights. Unless his attention has in some special manner been directed to other incongruities in the law, it is more than probable that he will extol the perfection of the system under which we have been working as the foundation of the mineral development of the West and the sure guaranty of its future prosperity.

The record of 40 years is the best encomium that can be pronounced upon it. It has admirably served the purpose with which it was designed, to promote the rapid development of a wild, unexplored country and to meet pioneer conditions.

In order to have a better understanding of how well it meets present-day conditions, it should be considered in connection with those prevailing when the system, so highly extolled, had its birth. At the time the mineral-land code was enacted, mining operations in the public-land States were confined almost exclusively to the washing of auriferous beds and the extraction and reduction of gold and silver-bearing quartz.

The act of 1866 specifically named gold, silver, cinnabar, and copper in section 2, which provided for the location of quartz claims, and it used no generic term authorizing the location of veins bearing any other metals. Cinnabar was being mined at the time of the passage of the act, the mercury it yielded being used in the process of amalgamation, then the standard treatment of gold and silver ores. The prospective value of ores carrying copper was not overlooked, but in those days cupriferous ores were penalized, just as ores carrying zinc were penalized at a later day, because their presence interfered with the processes then in vogue for the extraction of the gold and silver. It was not until 1876 that the systematic treatment of copper ores began in Montana. The act of 1872 added lead and tin to the list of metals enumerated in the act of 1866, and then, because no other metal had attained sufficient prominence to give it place, but in recognition that veins might be found carrying other metallic substances of value, the specific enumeration was supplemented with the general language "other valuable deposits," under which veins containing such minerals were made equally subject to location. The placer-mining law of 1870, reenacted in 1872, was frame primarily to permit the appropriations of gold-bearing gravel beds. The language of the act is "claims usually called 'placers,' including all forms of deposit excepting veins of quartz or other rock in place." The word "placer" is restricted in its significance, except as it is expanded by the statute just quoted, to beds of gravel carrying gold.

The originators of the mining laws were providing for the immediate necessities of their time—for laws that would permit the mining industry as it had developed in their day to go forward. Their minds did not dwell upon the infinite variety of "all forms of deposit" that might in time claim recognition as placers. It was gold placers to the appropriation of which they adapted the law. And so there was little clarity of vision as to what might be embraced within the designation of a vein containing "other rock in place," not quartz, bearing "other valuable deposits." The act was framed with no very accurate idea of any mineral deposit except one closely resembling the ordinary quartz vein bearing gold, silver, cinnabar, lead, tin, or copper. To illustrate: The appropriateness of applying the law to a deposit of phosphate, sedimentary in its origin and essentially different from a vein geologically, however it may resemble a vein in apearance, it is needless to say, received no thought from the lawgivers of the seventies.

The mining business has expanded until it embraces a multitude of deposits, and deposits in a multitude of forms, differing in character so essentially from those familiar to the times in which the existing laws had their origin that, as applied to such deposits, they are often grotesquely incongruous. Take deposits of oil and gas for instance. The language of the law permits them to be located as placer. It authorized the granting of patents to lands containing such on the same terms and under the same conditions as lands consisting of or overlain with beds of gravel through which are interspersed particles of gold. The hardy and venturesome prospector, often leading a hermit life, penetrated the remote wilds and, having found "colors" in the gravel in the bed or on the margin of a stream, made, by his find, a "discovery," such as is contemplated by the placer act. He was then entitled to mark out his claim. Thereafter he constructed a ditch by which the water of some adjacent stream was brought upon his claim to be utilized in washing the pay dirt. His preliminaries completed, he proceeded to mine his ground. When he had expended $500 in labor and improvements upon the ground, he became entitled to a patent, paying $2.50 per acre. He required no special training and little technical skill to fit him for the arduous calling to which he devoted himself. The erudite scientist would have very littel advantage over the unlettered prospector in hunting for placers. Having made his discovery, it was often necessary to make large expenditures in perfecting the arrangements for the economical working of his find. I have often gazed in unrestrained wonder at the remains of some old flume of the pioneer days clinging to the face of a cliff on which an eagle would scarcely find a perch. But the discovery itself involved no important antecedent expense, though subsistence while traveling in the search must be provided.

Oil prospecting is an altogether different affair. Unless it is rank wildcatting, a geological survey of the country must be made. If the expert is unable to tell where oil will be discovered, he at least can advise where in all probability it will not be. He can tell whether the geological conditions at any point that might become the scene of drilling operations are favorable or otherwise. There is no way of making an oil discovery, practically speaking, except by drilling. Seepages signify nothing. The pool drained by them may be miles away and the land in which they occur be utterly valueless from a mineral point of view. A drilling outfit is an expensive affair and costs money to operate. A placer miner's essential equipment is a shovel and a pan. When the oil prospector strikes oil—that is, makes his discovery—he has ordinarily spent many times $500. Nothing more is required to entitle him to patent. Finding oil, he gets title to 20 acres. If seven associates go in with him, they may take 160 acres. Then the ground about becomes the scene of feverish activity. Some rich and powerful adventurer, or a flock of such, sinks on the adjacent ground, and, reaching the oil sands, proceeds by means of powerful pumps to empty his claim and the whole pool, the existence of which was revealed by his genius and his enterprise. Even while he was going down, he was at the risk of finding himself in a race with a competitor lured to the region by the promise his labors had excited. It is not the man who first begins, but the man who first gets oil, who takes the ground. What chance has the ordinary man in such a race with the Standard Oil? Rivalry of that character naturally breeds hatreds that lead to bloodshed and breaches of the peace. Conditions quite akin to those imagined prevail to-day in the new oil field in northern Wyoming and southern Montana. The placer-mining law is wholly inappropriate to the development or disposition of oil and gas lands. It is no impeachment of the wisdom of the framers of the law that this is so. They had no conception that it would ever be applied to such lands, though it is the only law under which they can be or ever have been patented.

Another fact in this connection is that a conviction has seized upon the public mind that the old liberality in the giving of the public mineral lands as a reward for discovery ought to undergo some restraint with reference, at least, to those deposits that were not contemplated by the framers of the existing law, however such deposits may fall within its language.

The Argonauts were enemies of monopoly. Penetrating into regions in which there was no organized government, they established the reign of law which they enforced rudely but ruthlessly. In popular meeting they promulgated rules afterwards sanctioned by express congressional enactment, with respect to some of their features at least, a very common provision of which was that no man might take more than one claim, with an additional one to the original discoverer, in the district for the government of which the rules were established. The act of 1872, however, evidently to promote exploration by holding up greater rewards, permitted one to locate as many claims as he chose, burdening him, however, under penalty of forfeiture, with the obligation to do $100 worth of work on each annually. Accordingly, one may locate an indefinite number of oil claims under the existing law; for every well he sinks to oil he may appropriate 160 acres of land, assuming that seven other adventurers associate themselves with him. Associations backed by capital that may almost without hyperbole be referred to as unlimited, known to operate in the oil fields, may easily monopolize a rich but limited field. The preservation of their monopoly will impel them to resort to every means to command a promising source of supply. Recent activities in the new field heretofore referred to, bearing every evidence of a purpose to monopolize the productive area, induced the Secretary of the Interior to withdraw from entry six townships, awaiting the enactment by Congress of some more appropriate law with reference to oil-bearing public lands. It may be open to question whether, unless speedy action is taken by the National Legislature, this measure, intended to safeguard the interest of the public, will not operate to make more valuable the monopolistic privileges already secured. Meanwhile, development of the region into which capital is ready to go in very great sums is indefinitely arrested.

Whatever view may be taken as to restricting the unrestrained liberty now accorded in continental United States in the location or acquisition of gold placer claims or of veins bearing metals other than the rare metals, it will probably be conceded that a limitation should be placed upon the area of oil or gas land that one person may appropriate, just as a limitation was placed upon the area which any citizen might acquire under the coal-land act. Every reason that suggests that the area of coal land one may take should be limited applies with equal force in the case of land valuable for the oil or gas it carries. It was recognized, when the present mining laws were in process of making, that those provisions dealing with the mineral lands generally were inapt in the case of lands valuable for the coal in them. They became, accordingly, the subject of special provisions. Metallic mining, however, occupied a preeminent place in the minds of the framers of the code. Coal mining had made comparatively little progress. Wood was everywhere the ordinary fuel, the public timbered lands being available to the miner either by the acquiescence or by the express authority of the National Government. Colorado, California, and Wyoming were each producing coal in 1872, but the output was inconsequential. Montana did not yield any until 1880.

The coal-land laws gave evidence of having had relatively scant thought from those designing them. The citizen was denied the right to take more than one claim of 160 acres if he purchased singly without having made improvements, 320 in association with another, or 640 if they had done work or labor or made improvements of the value of $5,000 on the claim, the discoverer being given a right of preemption.

It was quite right to limit the area of coal land which any individual might appropriate. Ordinarily a coal seam obtrudes itself upon one from a river bank or an eroded hillside. The trained scientist might go searching for a coal deposit with some chance of running onto it. The ordinary man would be without a guide in his quest, even the topography of the country, of general aid to the quartz or placer prospector, affording no substantial assistance. But the exposure once having been found, it is a comparatively simple matter ordinarily to trace the deposit through the adjacent country, often in beds extending through thousands of acres. A hateful monopoly might easily be established, particularly as coal mining—commercial coal mining—requires elaborate and expensive equipment. The area open to purchase was, however, never adequate. Even 640 acres of western coal land were never at any time sufficiently extensive to justify the large expenditure necessary for development and equipment essential to carry on coal mining on a commercial scale. From the first this restriction in the law was evaded by the well-known device of dummy entries, a practice tolerated because otherwise the law would have been inoperative, until recent years, when it has been held not only illegal but criminal. The consequence of the enforcement of the law has been that appropriation of coal lands has all but ceased.

Another cause has contributed to the suspension in the appropriation of coal lands. The law gave to the citizen the right to purchase the area heretofore indicated at, to use its language, "not less" than $20 per acre if the land was within 15 miles of a railroad and "not less" than $10 an acre if more than 15 miles from a railroad. The language clearly implies that the lands are to be valued, but at not less than the figures named. But until recent years the law has been executed as though the prices of $10 and $20, respectively, were absolutely fixed by it. The plain error in the old construction of the law having been recognized, extensive areas were withdrawn for valuation and when restored, after must procrastination, were often offered at an appraisement so high that no one would buy. There is room for believing that the department officers charged with valuing, being averse to the entire policy of selling the coal lands, valued them so high that sales have practically ceased. Only 63 entries were made in 1914 for 8,157.45 acres, as against 248 entries of 38,325.26 acres in 1910.

The extremists are not all on one side. Enthusiastic gentlemen, with undue reverence for the things of the past, deplore that any change from the ancient practice was ever inaugurated. They would have the Government dispose of its coal lands, in view of the development and demand of the year 1915, on the same terms on which they were offered to the pioneers 40 years ago. Some of the lands in question have in recent years been sold at as high as $400 an acre. It may have been a wise policy 40 years ago to invite the public generally to take as much as they cared to of the public domain, but it scarcely comports with an honest discharge of the trusteeship of the General Government with respect thereto not now to exercise an exceedingly cautious supervision over the disposition of the remainder, and particularly to limit the area that may be taken of those deposits with respect to which a monopoly might be acquired. Coal, oil, and gas constitute a great source of power. On these combustibles and on electrical energy developed by falling water industry is dependent for power. Hydroelectric plants equipped with a distribution system become public utilities and as such are subject to State regulation. It is doubtful whether it is possible to regulate by law the price that may be charged for coal. A monopoly of that commodity is, accordingly, more to be dreaded than a monopoly of water power.

There is a further reason why the area one may appropriate of coal, oil, or gas land should be limited. The opportunity is extended to take an indefinite number of quartz or placed claims in order to spur search and promote discovery. In the case of coal, however, a very extensive, if not complete, survey has been made by the Geological Survey, in most of the regions within the public-land States, in which it is probable that coal deposits may be found. One searching for coal need not tramp the hills nor endure the privations of the pioneer prospector. He consults the Government publications and governs his actions accordingly. One might indeed find beds that had been overlooked, but deposits of such vast extent have been pointed out that the discoverer of limited areas that have escaped notice is entitled to no special remuneration.

This consideration applies as well to such nonmetallic mineral deposits as phosphate and the compounds of potassium and sodium. The location of many such deposits has been pointed out by the Survey. The man who, guided by it, begins operating on a deposit of that character is entitled to no reward as a discoverer.

It is still involved in more or less doubt whether phosphate rock is properly locatable under the placer-mining law or as a lode. The Interior Department is apparently wedded to the view that the lode law is applicable, but an authoritative adjudication is wanting. So it is not altogether clear whether potash, in the form in which it is found in the West, is subject to location under the placer-mining law or under the law applicable to salines. For various reasons nearly all deposits of valuable nonmetallic minerals were withdrawn from entry under the act of August 24, 1912. The uncertainty as to what law must be pursued to acquire title to many of these deposits, and the more or less glaring inappropriateness of any of those we now have for the disposition of them, were among the reasons inducing the orders ot withdrawal. It is high time that provision should be made that they may be released for entry.

The annual consumption of potassium salts in this country at the time the European war began was 800,000 tons, all imported from Germany. No little distress has been occasioned by the closing of that source of supply. The importations during 1915 have fallen quite 25 per cent. Recent discoveries in Utah and Nevada bid fair, with the Searles Lake salts, easily to supply the domestic demand.

The necessity for a general revision of the laws as they affect the disposition of lands bearing metallic minerals has been repeatedly set forth. As the local conditions become less and less like the primitive setting, out of which our existing laws came, the necessity for a change becomes more and more imperative. The development of the system of dry farming has given a high agricultural value to thousands, yes millions, of acres heretofore regarded as valueless for tillage. On an inquiry as to whether a certain tract may be appropriated as mineral land, it is of first importance to the mineral claimant to establish, if he can, that it has no value for agricultural purposes. Great areas have, by the advancement in farming methods, been transformed from mineral to nonmineral lands. Innumerable controversies have arisen in consequence of the changed conditions. The ubiquitous dry farmer has intruded into regions long regarded as the undisputed and indisputable territory of the mining prospector. The latter is under no obligation to make, nor does the law warrant him in making, a record of his claim in the land office. He awakes some morning to find that the ground to which he has for years pinned his faith is included within the filing of a squatter who is proceeding to make good his assertion of title by the erection of a house on the land. A long and expensive hearing in the land office is before him, likely to be characterized by much bitterness. The mineral claimant knows little or nothing himself about the surprising results that have attended careful cultivation, and is likely to regard the newcomer as a blackmailer. The homesteader, knowing nothing of mining and unskilled in recognizing indications of more or less significance to a practical prospector or miner, is likely to regard the mineral claimant with feeling akin to contempt—as a visionary.

The situation is highly critical in many sections of the West, but no very satisfactory solution has yet been evolved. It has been proposed that a classification be made, and that prospecting permits be issued for limited areas of lands, classified as mineral, within which area the prospector will be safe from the intrusion of the insatiable homesteader. But an old prospector who should be turned out of the possession of a property upon the judgment of some callow youth, acting under instructions from Washington, who should return the region as agricultural, would see few beauties in such a system. Regardless of his wrongs, areas rich in mineral wealth might easily be excluded even under the most careful and thorough survey. Public thought has not yet crystallized upon the plan that ought to be adopted to meet this problem, if indeed it has crystallized concerning any of the various features of the law in relation to the metallic deposits, in respect to which it has been urged that a change ought to be made. There is very general concurrence in the idea that the extra-lateral right ought to go. But there is still much confusion of counsel as to the change which ought to accompany its abolition, that the right of the discoverer to enjoy the fruits of his skill and toil may be measurably secured. These and like reforms may well await the return of the report of the commission to revise and codify the laws in relation to the mineral lands, provided for by a bill which passed the Senate at the last session and to-day was favorably reported again by its Committee on Mines and Mining.

But the conditions confronting us with respect to the nonmetallic minerals brook no such delay. In the task before Congress it would be of inestimable benefit to have the views of the commission, ripened by conference with men whose professional work has required them to give earnest thought to the subject, men who have their money invested in the mining or reduction of such deposits, or who are ready to put money into enterprises looking to the utilization of the rich stores of nonmetallic minerals found in many of the Western States. Of phosphate lands 2,611,115 acres, nearly one-half of them in the State of Wyoming, remain withdrawn from entry—all those of which the Geological Survey has any knowledge.

The insoluble phosphate rock as it comes out of the earth is converted into a soluble fertilizer of great value by the application of sulphuric acid. The active element, by the same process, is preserved in a concentrated form so that the product can stand shipment for considerable distances.

Until recently the copper smelters of the West were daily belching into the atmosphere prodigious quantities of sulphur which, descending in acid form, became destructive to vegetable life and imperilled animal husbandry. Costly litigation conducted by private suitors, and by the General Government, forced the installation of processes by which the fumes are robbed of their sulphur ingredient. Sulphuric acid is now the common by-product of the smelting of sulphide copper ores, but the market is distant and the production enormous. It is conservation of the highest order to use this corrosive element in copper ores, hitherto worse than waste, in making a fertilizer to restore the virgin fertility of the wheat fields of the Northwest. The productiveness of these wheat fields is suffering continual depletion. The average yield of wheat per acre in the State of North Dakota during the past 10 years was 11.5 bushels; that of South Dakota, 11.4 bushels, as against 13 bushels for the two States during the decade between 1880 and 1890. Despite crop rotation and the improved methods inculcated by the agricultural colleges, experiment stations, farmers' institutions, and other educational influences, the yield in Minnesota has suffered a decline of at least a bushel an acre during the last 10 years. A reduction of one bushel per acre in the three States named signifies an annual loss of 15,000,000 bushels of wheat.

The Anaconda Copper Mining Co. is willing to spend $2,000,000 in the installation of a plant for the mining of phosphate rock and the construction and equipment of a plant for the production of phosphate fertilizer. The only obstacle to the inauguration of this great enterprise, signifying the development of a new industry in the mining region, and added riches to the farmers of the Northwest, is the want of a law which will permit the mining of phosphate deposits. Other investors are ready to enter the same field.

The situation is even more deplorable in respect to oil. The recent decision of the Supreme Court upholding Executive withdrawals of land believed to be oil-bearing, awaiting congressional action touching the appropriation and disposition of such, has invalidated titles acquired upon the advice of counsel to the effect that such withdrawals were without authority of law. In many cases developments involving enormous expenditures in the aggregate have been made in reliance upon such titles. Not infrequently new fields were opened up in consequence of discoveries made by individuals who had been led to believe that such withdrawals offered no legal obstacle to the acquisition of title. Injunctions were secured in the suits brought by the Government, which are now made perpetual, restraining the operators from taking any fluid from the wells. The institution of suit operated, ordinarily, to stop extraction, as buyers of the crude oil refused to take the output of any well open to question, lest they should be obliged to pay a second time to the Government. The paralysis extended to many tracts involved in no suit, but which were within the area withdrawn.

In another class of cases instituted by the Government, locations of more than 20 acres were attacked on the ground that most of the locators were fictitious or dummies, a proceeding calculated, however necessary to the public rights, to cast a suspicion upon all titles not confirmed by patent. In not a few instances communities had been built up about the wells involved, which now face ruin. Meanwhile, wells sunk on adjacent lands held in private ownership are industriously draining the field affected, so that the Government, as well as the claimants, are suffering a daily irreparable loss. The situation is particularly acute in the States of Wyoming and California. The Southern Pacific Railway grants, in the last-mentioned State, give to that company, in the unfortunate complications which have arisen, a commanding position, and it is openly charged that the Standard Oil Co., to which the railroad company is allied, finds abundant opportunity for its customary strategy in the lamentable condition that has been precipitated. These special considerations aside, 4,829,667 acres of oil lands are now under withdrawal orders, over one-half of which are within the two States named.

Never before in the history of our country has there been such a plethora of money looking for profitable investment. All who have given any consideration at all to the subject are agreed upon the necessity of doing something to permit the appropriation of the lands, so useless as they are, so prolific of wealth under development.

It is over what to do that the fight waxes hot. A bill dealing with the general subject of nonmetallic deposits, coal, oil, gas, phosphate, potash, sodium specifically, passed the House at the last session, and, with the provision relating to coal and some amendments of more or less consequence, was reported favorably by the Senate Committee on Public Lands. It was introduced in both Houses at the present session in its original form, and is now before the appropriate committees. It is savagely assailed because of its frank adoption of the leasing principle. This association could render no more valuable public service than in candid recognition of the state of the public mind, to canvass with perfect freedom the provisions of the bill, and to record its judgment concerning the wisdom of the general plan proposed by it. With the desire to see some practical measure enacted into law at the present session, it is fair to assume there will be here entire sympathy. In that connection it might be borne in mind that no other comprehensive measure, purporting to deal with the subject, is before the present Congress nor was any presented to the last Congress. Various bills, fragmentary in character, representing no views except those of the individual Members proposing them, were indeed introduced. None of them, at least so far as my information enables me to speak, were the product of any concerted action on the part of any group of men, who had given either thought or study to the subject.

The bill specifically referred to took form as the result of conferences between the heads of the Committees on Mines and Mining and Public Lands in the two Houses of Congress and the Secretary of the Interior, aided by the Director of the Geological Survey and the Director of the Bureau of Mines. The assault is not on matters of detail. The leasing feature, the essential principle of the bill, draws the fire. It is said to be unconstitutional to lease the public lands, violative of the compact between the States upon which is built the fabric of the Union. Grave questions of constitutional law, it was asserted on the floor of the Senate a few days since, are presented by the departure which the bill is said to introduce. Those familiar with the discussions of this and related subjects in the past know that the Supreme Court has decided to the contrary (United States *v.* Graiot, 4 Pet., 751). It impoverishes the States, it is advanced, by withholding from them the right to tax the leased lands. As long ago as 1876 the Supreme Court held that the possessory right to mining lands is subject to State taxation, the property involved being the great Comstock lode (Forbes *v.* Gracey, 94 U. S., 762), and this decision was recently affirmed in Elder *v.* Wood, 208 U. S., 226, a case coming from the State of Colorado. The leasehold interest might by express provision of the statute be made subject to taxation by the State, and it would be so subject without any reference to the subject.

But this objection becomes ludicrous in view of the fact that scarcely any western State undertakes to tax mining lands, except upon a nominal valuation. The output, net or gross, is the basis of taxation in practically all of them. By constitutional provision, the State of Montana has disabled itself from taxing mineral lands as such, except for such sum as represents the Government price. The net proceeds are taxed whether the title to the lands from which they issue is in the Government or held by private individuals.

In Colorado all mines producing more than $5,000 gross annually pay on the net proceeds; it is only those producing less than that amount that are valued for taxation. Utah made the provision of the Montana constitution her model. Idaho has followed it in her statute. Wyoming taxes the net proceeds of its mines. It imposes no taxes on the lands themselves. Nevada has the same system.

The States' revenues will be neither greater nor less under a leasing system applicable to non-metallic minerals than they would be if such lands were alienated in fee, except as taxes might be wrung from lands to which title might be acquired and which were allowed to lie idle in order to forestall their acquisition by some one who might work them, or from lands acquired by one who might choose to hold them until by the growth of the community, the development of the industry in which they are calculated to play a part, or other conditions make the investment sufficiently profitable to induce their disposal. In other words, the State would lose the taxes on lands entered or held with purely speculative intent. It has even been proposed, but I can not think with reflection, that the lands with which we are particularly concerned, at least the coal lands, should be put up for sale to the highest bidder. This suggestions emanates from those who exhibit a deep concern about the limitation on the State's power to tax, consequent upon national ownership.

Millions of acres would, under any such system of disposal, pass into the hands of speculators. The condition of the market does not justify the purchase of any extensive areas for immediate working. The price at which the lands would be sold could only be such as to assure the purchaser at some distant day in the future, when the market is active, the return of the investment with a speculator's profit. Deposits of vast extent and volume have at present only a potential value, particularly the lignite beds. In the more or less remote future, when the population of the Rocky Mountain region is much more dense, when railroads have multiplied and industrial activity has built up teeming cities, the low-grade coal of the West will have a value, now incalculable, perhaps inconceivable. Coal is a low-grade, bulky article of commerce, and will not stand shipment by rail very great distances.

There is much merit in the proposal to turn these lands over to the States in which they are situated. The suggestion that they be turned over to private speculators at their present cash value is wholly vicious.

The objection to the leasing system on constitutional grounds is utterly devoid of merit. The argument that it unduly restricts the State's power to tax, at least in respect to mineral lands, is scarcely entitled to more consideration.

There would be a perfectly valid objection to the exaction of a royalty which should go into the Federal Treasury for the general expenditures of the Government, like the ordinary revenues. Tribute so paid would be nothing less than a tax levied upon a particular section of the country. But under the provisions of the bill to which reference is made, all royalties go into the reclamation fund, as the proceeds of sales do now, and will be utilized for the construction of works of irrigation in the communities from which the revenues come. When eventually returned to the Treasury by the settlers under the projects, one-half goes into the treasury of the States, respectively, from which they were originally paid.

It is advanced that development would not take place under a leasing system—that the American investor is so wedded to the idea of a perpetual interest, a title in fee, that he could not be induced to put his money into an enterprise founded on less, and particularly that he would shy away from a lease from the Government. I confess that this idea had possession of my own mind at one time—the prospect as to coal lands engaging my thought. I am not sure now that this view is wholly erroneous, but my conviction about the matter has been much shaken. The Western States are beginning to realize substantial revenues from their coal lands under the leasing system, to which they are all committed with respect to their own properties. For the biennial period ending November 30, 1912, Colorado realized $102,585. Wyoming received $74,772 out of coal and oil leases during 1913 and 1914, an increase of 250 per cent on the preceding two-year period, which yielded six times the revenue derived from that source in 1909 and 1910. The Chicago, Milwaukee & St. Paul Railway Co. tried hard during the last Congress to secure authority to lease two sections of coal land in Montana. It is said that at least one-half of all the bituminous coal mined in this country is taken out under leases, and it is urged by those favoring the leasing system that if the operator is given his choice either to buy or to lease upon a royalty he will invariably lease, because he thus escapes the necessity of the initial investment in the land itself. In order to determine which system the more surely and rapidly promotes development it is proposed to continue the present law permitting the purchase of coal lands, giving to each qualified purchaser the right to acquire two sections, the operator who prefers to lease being accorded the right to develop under that plan by what is known as the general leasing bill. The plan it presents, provoking so much opposition on the one hand and so resolutely supported on the other, seems particularly appropriate in the case of oil lands. The interests caught by the decision of the Supreme Court in the Mid-West Oil Co. case are here piteously pleading for an opportunity to lease the properties severally occupied by them. A house to house canvass is to-day going on throughout an extensive region in northern Wyoming and southern Montana among homestead patentees and other owners of land in that locality to secure leases authorizing the exploration of the lands affected for oil, gas, and coal, and the extraction of any of such minerals as may be found therein, the activity in that regard being induced by most gratifying results recently attained by venturesome prospectors on both sides of the State line. Those engaged in this rivalry would undoubtedly be pleased to take leases from the Government on the same terms they are offering to private owners. A representative of some of them at the Capitol a week ago voiced the hope that such an opportunity would be speedily afforded. He expressed the view that the prospector of modest means was now deterred from experimenting on public land open to exploration, lest, having begun operations on a promising field, one of the outfits suspected of sustaining intimate relations with the masters of the oil industry would set up a drill immediately beyond the ground of which he could claim the *pedis possessio* and "beat him to it." It is asserted, with what justice I do not pretend to say, that in such rivalries the outsider finds himself strangely embarrassed about securing supplies, and particularly pipe and the necessary implements, and even about effecting the necessary repairs incident to the work.

A private owner of land known or believed to be oil bearing would ordinarily prefer to take a royalty from one desiring to operate rather than to accept what he might be able to get in cash for the property. If no one would lease, but all owners insisted on selling outright, exploration and development would unquestionably be curtailed. It would be confined very largely to those able to command the services of scientists of the highest class that the chances of paying big prices for land that would prove valueless might be eliminated and who were able to pay the high initial cost which the acquisition of absolute title to the land would entail.

Touching phosphate lands, I am able to assert that no fear whatever need be felt about their active exploitation under a leasing plan. I have been importuned by two companies, amply able to provide all the necessary funds to put fertilizer on the market in large quantity, both of which are willing to spend money to educate the farmers of the Northwest to the advantage of its use that a market may be created, to expedite the passage of some act under which they may secure leases of phosphate deposits. I am advised that an equal avidity exists touching deposits of potassium salts.

"There is a tide in the affairs of men." If there had existed any law under which, in the state of public sentiment, coal mining could have gone forward in Alaska 10 years ago that Territory would be a hive of industry to-day. It would, in all probability, not have been necessary for the Government to engage in railroad building in that country. The most sanguine expectations were indulged touching the opportunities for profitable investment in the mining of coal in that Territory. The market was large. While the "tie-up" continued other fields were opened up in the British possessions. The use of oil for fuel was extended enormously and its production stimulated. It is a serious question as to whether the day of opportunity for Alaska, so far as its coal is concerned, has not passed by.

The conditions are all ripe for the opening up of the western lands that are rich in oil, gas, phosphate, and potash. The money centers of the East will be looking solicitously for promising investments for the employment of the bulging accumulation of money which the conditions of tremendous crops here and a hitherto unheard of demand for our products abroad is bringing them. Montana will realize this year and have for investment $25,000,000 over and above the returns of an ordinarily profitable season.*

Every patriot may indulge the hope that this meeting of the American Mining and Metallurgical Society may find it possible to smooth the way for the enactment of legislation at this Congress which will revivify the mining business so far as that result depends upon the laws relating to the disposition of the public mineral lands.

The CHAIRMAN. We are deeply indebted to Senator Walsh for the very broad view that he has given us of the deficiencies in the existing mining law. While other speakers have dwelt especially upon the law of the apex, he has given us a broad view of the whole subject.

Gentlemen, our program is now finished. We have done what we came to Washington to do, namely, to express to Congress the practically unanimous feeling that the mining laws—our existing mining laws—should be revised, and that persons engaged in the mining industry desire them revised. In concluding this meeting I desire in behalf of the Mining and Metallurgical Society of America to express the thanks of that organization to its own members, and especially to the members of other societies who have attended this meeting from points far remote from the halls of Congress. We have had with us to-day a large number of gentlemen, all of whom have come from a distance, the nearest from Philadelphia and New York; the farthest from States so remote as Oregon and California. The fact that persons engaged in the mining industry have come these long distances to take part in this meeting must show Congress the sincerity that the miners of the country have in the desire for a revision of the mining laws.

Gentlemen, this meeting now stands adjourned.

ORGANIZATIONS REPRESENTED BY DELEGATES.

Mining and Metallurgical Society of America.
American Mining Congress.
American Institute of Mining Engineers.
Idaho Mining Association.
Spokane Mining Men's Club.
Colorado Scientific Society.
Montana Society of Engineers.
Nevada Mine Operators' Association.
Oregon Bureau of Mines.
Engineering Society of Western Pennsylvania.
United States Senate.
United States House of Representatives.
United States Geological Survey.
United States Bureau of Mines.
United States Land Office.
United States Forest Service.
United States Board of Appeals.
Anthracite Bureau of Information.
United States Smelting, Refining & Mining Co.
Homestake Mining Co.
Utah Fertilizer & Chemical Co.
Mid West Oil Co.
Midway Northern Oil Co.
Pacific Coast Borax Co.

(A great many mines and mining companies were represented by delegates who registered as members of one or more of the foregoing organizations, rather than as delegates from particular mines.)

CHAMBERS OF COMMERCE WHICH APPOINTED DELEGATES.

Great Falls Commercial Club.
Phoenix Chamber of Commerce.
San Francisco Chamber of Commerce.
Helena Commercial Club.
Oregon State Miners' Association.
Humboldt Chamber of Commerce.
Douglas Chamber of Commerce.
Canon City Chamber of Commerce.
Florence Chamber of Commerce.
Fairbanks Chamber of Commerce.

O

CLAIM OF THE GOVERNMENT OF NORWAY.

MESSAGE

FROM THE

PRESIDENT OF THE UNITED STATES,

TRANSMITTING

A COMMUNICATION FROM THE SECRETARY OF STATE, WITH ACCOMPANYING PAPERS, IN RELATION TO A CLAIM PRESENTED BY THE GOVERNMENT OF NORWAY AGAINST THIS GOVERNMENT ON ACCOUNT OF THE DETENTION OF THREE MEMBERS OF THE CREW OF THE NORWEGIAN SHIP "INGRID."

JANUARY 7, 1916.—Read; referred to the Committee on Foreign Relations and ordered to be printed.

To the Senate and House of Representatives:

At the request of the Norwegian Minister at this Capital and in view of the recommendation of the Secretary of State, I transmit the latter's report and the accompanying documents relating to the claim made by the Norwegian Government in behalf of three members of the crew of the Norwegian ship *Ingrid*, and I recommend that, as an act of grace and without reference to the question of the liability of the United States, an appropriation be made to effect a settlement of this claim in accordance with the recommendation of the Secretary of State.

WOODROW WILSON.

THE WHITE HOUSE,
Washington, January 7, 1916.

The PRESIDENT:

The undersigned, the Secretary of State, has the honor to submit a copy of a note from the Norwegian minister at this capital asking for information whether Congress appropriated, as recommended by the President, the sum necessary to pay, as an act of grace and without reference to the question of the liability of the United States, a personal indemnity in behalf of certain seamen of the Norwegian ship *Ingrid* and a reasonable sum to cover the expenses of legal services in connection with the habeas corpus proceedings which were instituted to obtain the release of these men.

The matter was submitted to Congress by your message of October 7, 1914, and correspondence in relation thereto is printed in Document No. 1172, House of Representatives, Sixty-third Congress, second session, a copy of which is inclosed.

It appears that a bill was introduced for the purpose of appropriating money for the payment of the claim for indemnity presented by the Government of Norway against this Government, but the bill was not enacted into a law.

In view of the request made by the Norwegian minister, the Secretary of State has the honor to recommend that the matter be again brought to the attention of Congress.

Respectfully submitted.

ROBERT LANSING.

DEPARTMENT OF STATE,
Washington, January 4, 1916.

LEGATION OF NORWAY,
Washington, D. C., July 29, 1915.

MR. SECRETARY OF STATE: Referring to the note of September 17 last, by which your excellency's predecessor was good enough to inform me about the State Department's recommendation of an appropriation of $2,200 in satisfaction of the personal claims of three members of the crew of the Norwegian ship called *Ingrid*, I have the honor to say that I should appreciate very much to be informed whether such appropriation was made by the last Congress, in conformity with the message from the President of the United States dated October 7, 1914 (63d Cong., 2d sess., H. Doc. 1172).

Please accept, Mr. Secretary of State, the renewed assurances of my highest consideration.

H. BRYN.

His Excellency Hon. R. LANSING,
Secretary of State, etc.

O

64th Congress, 1st Session | SENATE | Document No. 238

THE POSTAL SERVICE AND LATIN AMERICAN TRADE

AN ADDRESS

DELIVERED
BEFORE THE SEVENTH ANNUAL CONVENTION
OF THE SOUTHERN COMMERCIAL CONGRESS
HELD IN CHARLESTON, S. C., ON
DECEMBER 16, 1915

BY

HON. DANIEL C. ROPER
FIRST ASSISTANT POSTMASTER GENERAL

PRESENTED BY MR. BANKHEAD
JANUARY 5, 1916.—Referred to the Committee on Printing

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

REPORTED BY MR. FLETCHER.

IN THE SENATE OF THE UNITED STATES,
January 7, 1916.

Resolved, That the manuscript submitted by the Senator from Florida (Mr. Fletcher) on January fifth, nineteen hundred and sixteen, entitled "The Postal Service and Latin American Trade," an address by Honorable Daniel C. Roper, First Assistant Postmaster General, before the Southern Commercial Congress at Charleston, South Carolina, December sixteenth, nineteen hundred and fifteen, be printed as a Senate document.

Attest:

JAMES M. BAKER, *Secretary*.

THE POSTAL SERVICE AND LATIN AMERICAN TRADE.

Mr. President, Members of the Seventh Convention of the Southern Commercial Congress, Ladies, and Gentlemen:

I am pleased to be here to-day for several reasons. First, because for me it is a homecoming, a return to my native State; again, it is a pleasure for me to join in the discussion of topics of great American interest in this most remarkable of all southern cities, where American citizenship and loyalty are 100 per cent pure; again, I am pleased to be here as an evidence of my appreciation of the splendid work of the Southern Commercial Congress. This organization has proved itself a capable commercial agency, surcharged with dynamic possibilities. It represents the faith that men have in the commercial and industrial future of the Southern States. It must be understood, however, that the word "southern" as here used is as broad as the patriotic sentiment that animates all Americans at the present time, not bound by sectional lines, nor even by the boundaries of our own country. In seeking the progress and development of the South we can not, nor is it our intention to, separate our endeavors from the common welfare of our common country.

Commercial preparedness.—In the world to-day things are moving with fearful rapidity. Events for which we are not responsible have suddenly thrust upon our country marvelous foreign-trade opportunities, but we are powerless to avail ourselves of the situation, except in a small way, because of unpreparedness. We have the goods; we have the money; we have the men with the ability; but we have neither the ships nor the established relationship of confidence and understanding on which substantial trade must rest. This is a problem in which the South is vitally interested, but it is the problem of our entire country. At the conclusion of the frenzied war now devastating Europe even greater problems will confront us. With the lesson we have had taught us of the need for a merchant marine, with the experience we are still gaining, let us hope that we will not continue in this state of unpreparedness. In this constructive work of preparation to meet commercial demands such organizations as the Southern Commercial Congress may be of great value in investigating conditions and in assembling, digesting, and presenting to the public reliable data and suggestions. Such investigations should uncover all existing commercial and governmental facilities and give these vitality by bringing them into the closest possible cooperation. The investigation will also prompt proper recommendations to commercial and lawmaking bodies as to how existing facilities should be enlarged and made more effective in opening up and maintaining channels of trade. Among the governmental agencies already in existence the investigators will readily locate our postal functions and facilities.

Effect of postal service on foreign trade.—With your permission, therefore, I shall, as a representative of the Postal Service of our country, speak to you on the subject of postal service and Latin American trade. But in treating this topic I must crave a latitude broader than that defined by the words I use to express my subject, for the postal service is not only the messenger of sympathy and love, the servant of parted friends, but the instrument of trade and industry.

Off the west coast of South America, at the intersection of several trade routes, lies a rock—by courtesy called an island—one of the Galapagos group. It is barren and uninhabited, just a pinnacle of rock and all but submerged. On this rock there is no life or industry, but there is a post office. The post office is a barrel. Passing steamers put off small boats to collect their mail and to deposit mail for other steamers that in due course are to pass that way. This strange post office of Galapagos illustrates the fact that while the postal service is a refinement of civilization, it is first a means of satisfying a primal human want. Man is a social animal, and under the most untoward circumstances must seek communion with his fellows. From the earliest times he has been diligently devising means of communication and transportation to break down the barriers of time and space. There is scarcely anything for which men go to more trouble and take more pains about than in securing, perfecting, and safeguarding facilities for removing the obstacles to social development that are inherent in distance.

The vast Persian Empire was a jellyfish nation, organic but feeble, for its measure of distance was the parasang and the slow painful day's journey of men and horses. The Roman Empire, with its wonderful military roads making possible the best speed from Egypt to Scotland, still measured its power to strike and control in the "mille passuum" (thousand paces) of the imperial legions.

It needs but a thought to see that the progress of races and of the world has gone hand in hand with the development of these facilities for neutralizing distance. It is a far cry from the beacon fire on the hilltop to the radio station, from the relayed post runners to the twentieth century fast mail trains, from the slow-going caravan to the parcel-post aeroplane. The progress was most gradual until recent years, but now it seems to proceed by leaps and bounds. Such advance in communication and transportation has its effect on the contemporaneous social and commercial order. Once established it becomes an essential factor in a new order. Gradually the relations of men and nations become closer until now, even in the midst of a world war, we look forward confidently to world peace and solidarity.

The postal function.—How shall we best define this field of action and progress? In a general and broad sense it is postal; that is the one word which adequately and simply describes everything relating to transportation and communication, everything that tends to minimize distance.

Above the Statue of Commerce in the Library of Congress is an expression well calculated to stimulate the imagination: "We taste the spices of Arabia, yet never feel the scorching sun which brings them forth." The subjects of commerce, transportation, and communication are inextricably allied. In fact, they are but phases of a broader conception that is only embraced by the field of postal activities.

In discussing our domestic parcel post some time ago I formulated this definition of the constitutional provision for postal service in this country:

> The postal function is to neutralize the obstacles to national development that are inherent in distance. It is the constitutional duty of the National Government to perform this function only in so far as it can not be fully and properly performed by private enterprise.

This definition I believe to be sound, and it can readily be enlarged to fit the international postal function. There is nothing radical or revolutionary about it. It merely defines the field; it does not attempt to say how far government ownership, control, or regulation shall go in that field; but it lays down the salutary principle that expediency and the common weal shall alone be consulted in enlarging or curtailing the Government's activities as a common carrier of goods and messages. Within the vast field of the postal function there is yet no line of demarcation between those things which governments exclusively should do and those things belonging wholly or partly to private enterprise.

Postal progress.—Our New National Museum at Washington is justly famous for its ethnological exhibits, which are of two kinds. In one collection series there are represented by life-size clay figures the people of several races in successive eras; and paralleling these is another series showing the contemporaneous specimens of the arts and crafts of men. In one cabinet, the man; in the other, his deeds; together constituting a good substitute for intimate acquaintance. Now postal service has had its part in molding both the man and his arts and crafts. Without it the world would be deaf, dumb, and blind. I have wondered what ethnological development the next quarter century will show when a single decade now brings more postal progress than a century formerly brought. In the past ten years the post office has developed almost beyond belief. The Federal postal revenue has jumped in the last two decades from $75,000,000 to about $300,000,000, far outstripping the increase in population. The postal revenue per capita is now $2.91, as compared with $1.74 even 10 years ago. Within the last decade the parcel post and postal savings have been added to the post office, and in many other ways the service has been brought closer to the actual needs of the people. Its influence in the coming years will be by that much the more extensive and profound.

The mail service has blazed the way for our commercial and industrial development. Its influence is so interwoven with the whole social fabric that it can hardly be detached and considered apart. The United States mails are the thousand-threaded warp across which the nervous energy of our people has been woven into an intricate fabric of unselfish interest in all humanity. Like the strands of the warp, the lines of the post office are not much regarded in the operation of weaving the future of our country except when they break, and then they are mended quickly so that the weft may be properly supported.

All trade, of course, depends on postal service, and very largely on mail service alone. The splendid development of postal service in the United States has gone hand in hand with the growth of domestic trade, and in recent years has brought about that peculiar manifestation of commercial and social solidarity known as mail-order business.

The international mails.—Let us turn to foreign trade and international postal service. We have some foreign trade. In fact, the amount of it is quite wonderful, considering the fact that we have not gone after it. It has been thrust upon us by other nations whose consequent benefits may be presumed to be not less than those they have conferred on us. Our trade relations are excellent with those nations who have desired to trade with us, but not so good with those nations with whom we should, in our own best interest, desire to trade.

This situation is reflected in the conditions under which we maintain mail service with these several nations. Very largely our mails at sea are carried by foreign steamships over which our control amounts to little or nothing. On the Atlantic between the great outlet for our valuable raw materials, the port of New York, and the great manufacturing and exporting cities of Europe mail service is excellent.

Mails to South America are reasonably frequent but occur at irregular intervals. Having no contract American lines south ot Venezuela, the department dispatches the mail as best it can by whatever vessels are sailing. It is a sad commentary on the situation that commercial letters from Argentina often reach their destinations in this country via Europe. The disadvantage to which our consuls and commercial and financial agents are put as compared with those of Germany, England, and France is apparent. An order for goods from Buenos Aires to London may in time of peace be received, filled, and dispatched before a similar order reaches New York. Similarly with remittances and commercial advices.

In the great field of postal relations farsighted Europe has elbowed its way between the rich neighbors of the New World. The principle of the Monroe doctrine presents a bulwark on one side of the situation only, for Europe has exploited the Americas more effectually in a commercial and financial way than she could have done by the crude method of colonization.

International understanding and cooperation.—It is not a matter of mail service alone. All the elements of postal relations must be considered and in relation to the national and international conditions, social and political. Understanding and sympathy between North and South America have been lacking as well as ships, cables, railroad lines, and the Panama Canal. The mail service depending on these factors has reflected, and still reflects, the backward condition of our trade relations with South America. What is needed is an advance all along the line, and it must originate in the consciousness of the people in both continents. There are at hand many evidences of an awakening. The Panama Canal is at last completed, and there is available a sea route from New York via Panama to the west coast of South America, constituting that geometrical conception which is an ideal in postal affairs, namely, the shortest distance between two points, an almost straight line directly north and south. The Pan American Union is a significant evidence of international cooperation and an agency that has already proved its great value in promoting trade between the nations of the New World.

"*The Americas for Americans.*"—English in South American schools and Spanish in the schools of our country have come into unusual favor in the last five years. We are examining each other's literature, arts, manners, and customs, and we find them not half so bad as we expected. The mutual lack of confidence and sympathy is giving way to the broad, uplifting sentiment, "The Americas for Americans." Postal service aids in the dissemination of useful information about foreign lands, carries the dispatches of consuls, the newspapers and magazines of other nations. It supports the vital operations of the financial rating companies. By all these agencies and devices foreign trade is facilitated. With these at hand, by advertising in foreign publications, using financial rating service, making goods according to demand, extending credit terms desired and customary, booking orders by mail, shipping samples by parcel post and goods by ocean freight, mail-order business may be had in South America and developed in time even to the wonderful extent to which it has attained within our borders.

Basic influence of postal service on trade.—Commerce can not be developed except through regular, reliable, and expeditious mail facilities. The mails must first penetrate the country and prepare the way for the exchange of commodities. Ideas pass before goods. Quick communication is necessary in other ways. Certain progressive banks in this country have established branches in South America so that financial relations may be direct and Europe may no longer take toll of our exchanges with our South American neighbors. Commercial-rating companies are compiling business-credit information for the use of our exporters. All this, to be of the greatest use, must be supplemented by good mail service. If a German or British commercial agent in South America can exchange advices with his principals in much shorter time than our Americans can get in touch with New York, the disadvantage of our nationals is almost too great for them to overcome.

I have endeavored to show that the influence of postal service on trade is basic. Trade follows the establishment of communication and transportation. The two develop hand in hand. Our foreign trade thus far has been confined pretty much to Europe, and our trade relations with South America have been negligible. This condition is reflected in the foreign mails, which are prompt, regular, and certain to Europe, but much less regular, frequent, and certain to South America. To all South America we have only one contract mail line, running to Venezuela. Other dispatches are reasonably frequent, but occur at irregular intervals. It is not always certain when the mail will be closed nor when it will arrive at the port of destination. This is a condition which discourages trade, and at the same time a condition which nothing but closer trade relations can correct. So the development of our trade relations with South America and the improvement of our South American mails are one and the same problem. Both depend for solution on the development of shipping facilities.

Existing barriers.—It is easy to locate existing barriers to the development of a satisfactory trade relationship between our country and Latin America, and other difficulties must be expected in the course of our progress. Among the difficulties which must be met the following are representative:

In the first place, the postal relations of this country with the countries of Latin America may be improved in several important respects so as to facilitate trading operations. These changes, however, are not easily nor quickly to be brought about, for they involve not only legislative and administrative action on the part of our Government, but also reciprocal action on the part of each and all of the foreign Governments. Within the past few years our Government has been very successful in securing parcel-post and money-order conventions with Latin American countries and this has had a beneficial effect on our foreign trade. Argentina was added to the list of those countries with which we can exchange parcels, effective October 15, 1915. The further changes which are especially desirable now, and which our department is working for most, are:

First-class postage.—First, a uniform arrangement for fixing first-class postage rates for all countries in the Western Hemisphere according to the domestic rate of the country of origin. This would give us a 2-cent rate per ounce for first-class matter for every point in the New World. The importance of this change will readily be appreciated, for the consequent stimulus to correspondence, both social and business, would bring the countries closer together, and reduce the cost of carrying on business relations. This highly desirable objective is being earnestly sought by our Postmaster General. Some of the Latin American officials have expressed the fear that their countries would sustain postal revenue losses by the arrangement for which they are not at this time prepared. Through the proper channels it should be easy to show these countries that the great increase in the volume of mail matter resulting in such a reduction of postage rates would far offset the initial loss they fear.

Parcel-post conventions.—Second, the establishment of working and workable mail and parcel-post conventions with all of the countries with provision for advantageous arrangements covering the charge for the delivery of parcels by the foreign administration and the simplification of customhouse requirements. In the matter of customs regulations our own country is the chief offender. For a generation or more our Government has proceeded on the erroneous theory that it is a patriotic duty to keep foreign wares out of America by cumbersome procedure at the port of entry as well as by prohibitive tariffs. The Latin American countries have followed our example so that their customhouse requirements are notoriously complicated and harassing. It would seem, as an expert in exporting recently said to me, that the regulations of our country, as well as the countries of Latin America, are formed secondarily for revenue and primarily for the sake of obstructing commerce. As the countries of Latin America raise a large part of their revenue from customs, it would seem for that reason, if for no other, they should be willing to collect it in the most expeditious and economical manner and with the least possible inconvenience to shippers. Here, again, progressive commercial organizations like the Southern Commercial Congress can assist in acquainting our merchants in the rules and regulations with which they must now comply in shipping to the several Latin American countries, and they can also assist in supplanting eventually all these old and cumbersome customhouse regulations and excessive delivery charges by practices and rates that will encourage and stimulate business and again make up in volume the initial loss in rates.

The domestic tariff.—There is nothing in our national policy that so vitally affects our trade relations with Latin America and our prosperity at home as the tariff. The Democratic Party has repeatedly gone on record for tariff construction on progressive lines, and in 1913 was given the opportunity to revise the tariff for the reason that the protectionist, stand-pat, and conservative ideas of the Republican Party had made it impossible for that party to give the country the relief from tariff burdens which the people demanded. Under the rapidly shifting industrial conditions of normal business times careful observance and study should be given constantly to the operation of the tariff law. The abnormal conditions of the last two years brought about by the distracting war in Europe makes a study of the operations of the tariff especially necessary at this time. A realization of this will no doubt prompt the present Congress to create, if need be, new as well as give force and vitality to existing Government tariff research functions as will properly keep the Congress informed during the next few months, and especially during that period from the close of the European war to the establishment of normal business conditions, so as to afford the Congress a safe basis on which to make proper adjustments in the law and remove inequalities in its operation. Foremost among such investigations and endeavors should be the study of trade relations with South America and the establishment of trade conventions with those countries.

Under present conditions the tariff law is, of course, inadequate to produce revenue for the support of the Government because of the loss of imports due to the cessation of all except war activities in the important manufacturing countries of the world. This condition will of necessity continue at least until the close of the war, and during that time, it matters not what the tariff rates may be, adequate revenue can not be forthcoming. Attention must thus be given to other sources of revenue, at least temporarily, and these sources are now internal instead of external, for the obvious reason that the flow of commodities to be taxed does not now cross, but takes place entirely within, our national boundaries. The country and Congress are therefore confronted, by force of circumstances, with the necessity of giving consideration to direct taxation in order to procure the needed revenue for the Government. With the close of the war the conditions of trade must again be most vigilantly scrutinized, and scientific adjustments made of the tariff and of the methods of supplementing direct taxation, so that revenue for the support of the Government may continue to flow into the public Treasury with the least possible expense for collection, loss, or embarrassment to the people, or obstruction to the free interchange of commodities with Latin America and with other nations.

Parcel-post rates.—Third. Standardized and minimum parcel-post rates between this country and the countries of Latin America. The Post Office Department has for a number of months been applying itself industriously to the consideration of this subject, but here again needs the cooperation of interested private agencies at home as well as the cooperation of the South American countries, which will result from a comprehensive understanding of the situation.

The Cuban situation in this regard is a good illustration. A parcel-post arrangement with Cuba is especially to be desired, but we have a customs regulation in our country forbidding the importation of cigars in parcels containing less than 3,000 cigars, which weigh about 30 pounds. As cigars are the principal article exported by the Cubans, their Government will not accede to a parcel-post convention that does not include that commodity. If this conflict of interest between cigar manufacturers in this country and Cuba could be compromised and a parcel-post convention established, a wonderful field would be opened to our manufacturers and dealers in hundreds of lines, for the imports of Cuba from European nations are large and varied. No one has been more active in seeking to bring about this reform than that distinguished South Carolinian who is now so ably representing the interests of the United States at Habana, William E. Gonzales, and anything that this commercial congress can do to make his efforts effective will be a great benefit both to our country and to Cuba.

Collect-on-delivery service.—Fourth. The inclusion of a collect-on-delivery fee in all of our foreign parcel-post arrangements, which would greatly facilitate the sale of small articles and initial orders of merchandise. Such an arrangement is being operated in the Hawaiian Islands under our domestic parcel-post act to the great advantage of shippers, and the British Government has this arrangement with practically every nation in the world. It must be recognized that our extended parcel post, together with C. O. D. provision, is absolutely necessary for general participation in foreign trade. The parcel post carries the samples, the initial and trial orders, and the repair and supplemental shipments, a service indispensable to all beginners in export trade, and these small orders and shipments can be handled only with the greatest difficulty without collect-on-delivery arrangements. Some of our largest exporters who have many of these shipments to make send them in bulk by freight or express to England and then deposit them in the British mails and thus avail themselves of the collect-on-delivery service. This expedient, however, is not open to the beginner, whose volume of trade would not warrant shipment to England and the maintenance of a forwarding agency there. We should have hundreds of exporters where we now have one, but this can never be brought about until we have C. O. D. arrangements of our own. The difficulty which the department has encountered in employing this practice in foreign countries is the fact that to establish workable C. O. D. arrangements involves clothing some individual in the necessary localities of foreign countries with the important functions of an American postmaster, to which it is feared international barriers and complications might attach.

For my part, I am satisfied that this apparent difficulty can and must be satisfactorily solved, probably through the utilization by permission of the State and Commerce Departments of the consular and commercial agents of the Government, or through suitable arrangements with the postal administrations of many of the countries. Any movement which has for its object the bringing about of more cordial and sympathetic relations between the people of this country and the people of South and Central America will naturally incline the foreign Governments to a more favorable consideration of the proposals of our Government.

Campaign of education.—The great opportunity of this commercial congress, and of other similar organizations, is in conducting a campaign of education to bring our people generally, and especially those who are engaged in our business and financial enterprises, to a clear understanding of the elements involved in a successful commercial campaign in foreign countries.

Trade agents abroad.—To begin with it is necessary that our country, and especially our commerce, should be suitably represented in the countries where trade is desired. The agents who are sent out should not only speak the language but should be familiar with the manners and customs of the people to whom they are sent. They should under stand and be respectful of the local prejudices and idiosyncrasies and, above all, they should assume a sympathetic and cordial and not an arrogant manner. A good illustration of what I am endeavoring to make clear was conveyed to me by Governor Yager, of Porto Rico, in a letter some months ago in which he stated that the most important qualifications to be considered in connection with the appointment of a postmaster at San Juan were, first, that the man should speak the Spanish language and be appreciative of and sympathetic with the customs and habits of the people of Porto Rico; and, second, that he should be a man who could assimilate with them and not manifest, as is too frequently the case, an American arrogance and spirit of braggadocio, constantly telling the Spaniards how inferior they are to Americans. In further promoting mutual acquaintance between our country and the Latin American countries traveling fairs and exhibits there and here, combining their natural resources and our manufactures, are of great value in enabling people to visualize trade possibilities. Again, advantageous ocean passenger rates for tourists should be arranged, for such rates promote acquaintance and sympathetic understanding.

Exporting is a business specialty.—Further, the American commercial houses that wish to engage in export business should be brought to realize that exporting is a business specialty, and that the management of that branch of their operations should be intrusted to those who have made a study of the proper method of conducting them. Foreigners, and especially the Latin Americans, object to the manner in which American business houses conduct correspondence. In their countries business correspondence is conducted with a punctiliousness and formality that is entirely foreign to the mind of the average American business man. In this matter Americans will do well to conform to the prejudices of their prospective customers. Latin Americans also feel, and I think with good reason, that the Americans are inclined to be too concise and abrupt in conducting correspondence at such a long range. While it may be entirely proper within our own country to write business letters with the characteristic brevity, letters to foreign customers should be full and comprehensive on every point so that misunderstandings may be avoided. Above all, stereotyped signatures and the rubber-stamp notation "Dictated but not read" should be avoided in dealing with Latin American business houses. Short-paid postage is another offense of which our exporters are frequently guilty. First-class matter to which postage to the amount of the domestic rate has been affixed is forwarded in the international mails, but under existing postal laws the addressee is required to pay double the amount of the shortage. The recipient of such a letter is most unfavorably affected by this imposition, and American business houses should take especial precaution to see that all of their mail for foreign countries is fully prepaid. Even the English and French, with their heavy business relationships with our country, seriously object to these lax and irresponsible American practices.

The dumping evil.—Next, our business people should be made to understand that foreign trade is not a thing to be taken up during the slack season and laid aside when domestic business picks up. The result of this policy, although it may result in a little profit in some instances, is to discredit the good name and credit of all other American exporters in the same foreign field. Commercial institutions in this country should not continue in this shortsighted policy of using the foreign market merely as a dumping ground for their surplus products. A former agent of an American manufacturer of machinery found this policy on the part of his principal a serious barrier to the development of export trade to one of the American countries. When domestic trade was slack orders and correspondence were attended to satisfactorily, but whenever the domestic demand was great enough to care for the maximum output of the manufacturing plant this company would not fill the orders sent in by their foreign representative, and on one pretext and another delayed shipments until the domestic orders were entirely filled.

Filling foreign orders.—American manufacturers who undertake to market American goods in Latin America should make a special study of the demands in those countries and of the peculiar preferences of the Latin American customers. These preferences may not seem important from the American point of view, but a close observation of them is vital to the success of export business. The policy should be laid down and consistently followed of filling every order explicitly without making substitutions of any kind and, in case of doubt, to incur the delay necessary to obtain by correspondence supplementary instructions before making shipments. American exporters have in practically every foreign market the most undesirable reputation for ignoring the wishes and instructions of their customers.

I take it that it is not necessary to comment in this connection on the matter of packing, about which so much has been written and said for the benefit of our American exporters. The conditions under which ocean freight is handled, especially in the smaller ports of Central and South America, result in damage to even the stoutest bales and boxes, for much of this matter must be unloaded by means of cranes from the holds of vessels to open tenders rolling in a rough sea.

Financial problems.—The financial problems involved in securing and maintaining this foreign trade should be studied first hand in those countries by representative banking committees in the closest cooperation with the manufacturers and shippers. In this connection it would seem that the most vital reform necessary is to bring about a condition in which the commercial acceptances by foreign purchasers for goods shipped to them by American houses will be discounted by American banks in the same way that similar acceptances received by German and English exporters from their Latin American customers are discounted by the banks of their respective countries. This is the crux of the whole problem of long credits.

Educational exchange.—An effort should also be made to bring about an exchange between Latin American countries and our country in the education of young men for bringing the two continents closer together, in the same manner as this has been done by the Chinese and Japanese in introducing occidental civilization and customs into their countries. Universities and colleges of our country and of South America might well be induced to encourage this by means of scholarships, and it might not be impossible to discover an American Cecil Rhodes, who would establish in perpetuity scholarships in the leading North and South American universities for especially qualified and selected students.

Helpful postmasters.—The American Postal Service was never manned by a more alert, efficient, and loyal collection of postmasters than it is to-day. These officials and the entire postal personnel have a high conception of their civic duties, are surcharged with the true American spirit, and stand ready to cooperate in every legitimate way, through the department, with the Latin American countries toward bringing them and our country into a perfect understanding with each other so as to more effectively cooperate in solving our mutual problems.

International political relations.—The prejudices which have long existed in Latin America against the United States have been prompted by the fear of aggression. This, like most of the misunderstandings between individuals and nations, has resulted from a lack of intimate communication and acquaintance. The action of our Government in enlisting the A. B. C. powers in a cooperative endeavor to establish safe governmental conditions in Mexico and thus avoid misunderstanding on their part of the intervention that finally became necessary has done much to demonstrate the unselfish attitude of the United States toward South American countries.

Improvement along all these lines will induce improvement in our postal relations with Latin America, and every improvement in our postal relations will be both a cause and a symptom of better trade relations.

64TH CONGRESS }
1st Session }

SENATE

{ DOCUMENT
{ No. 239

PERMANENT AGRICULTURE AND SOCIAL WELFARE

ADDRESS

DELIVERED

BEFORE THE NATIONAL ASSOCIATION OF REAL ESTATE
EXCHANGES AT LOS ANGELES, CAL., ON JUNE 23, 1915,
AND BEFORE THE FARM MANAGEMENT ASSOCIATION
AT THE UNIVERSITY OF CALIFORNIA,
AT BERKELEY, CAL., ON AUGUST 9, 1915

BY

THOMAS FORSYTH HUNT
DEAN OF THE COLLEGE OF AGRICULTURE
UNIVERSITY OF CALIFORNIA

PRESENTED BY MR. FLETCHER

JANUARY 5, 1916.—Referred to the Committee on Printing

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

REPORTED BY MR. FLETCHER.

IN THE SENATE OF THE UNITED STATES,
January 7, 1916.

Resolved, That the manuscript submitted by the Senator from Florida (Mr. Fletcher) on January 5, 1916, entitled "The Relation of a Permanent Agriculture to Social Welfare," an address by Dr. Thomas Forsyth Hunt, Dean of the College of Agriculture, University of California, be printed as a Senate Document.

Attest:
JAMES M. BAKER,
Secretary.

THE RELATION OF A PERMANENT AGRICULTURE TO SOCIAL WELFARE.

By Thomas Forsyth Hunt.

Dean of the College of Agriculture, University of California.

(Address delivered before the National Association of Real Estate Exchanges, Los Angeles, Cal., June 23, 1915, and before the Farm Management Association, at the University of California, Berkeley, Cal., Aug. 9, 1915.)

In the 20 minutes at my disposal I propose to support the following propositions:

1. American farms must be recapitalized at least three times in a century.
2. Young men are born into the world with their clothes off. They are without capital.
3. The open country can not afford to support numerous social, religious, or racial divisions.
4. The country population of one generation determines the character of the city population in the next generation.
5. Land credit, popularly known as rural credit, is a means of creating a permanent agriculture by putting farm mortgages on an investment basis.

One preliminary observation—wealth and welfare are not synonymous terms. There is a great deal of wealth invested in diamonds, but diamonds cause very little welfare. In this discussion we are interested primarily not in the wealth, but in the welfare of society.

In San Francisco there is a furniture store that has been in existence since the early fifties. How many farms can you recall that have been under the same management since 1860? A corporation is endowed with the capacity for succession. A farm enterprise is dependent upon the life of a single individual.

This National Association of Real Estate Exchanges represents a conscious effort to settle America. The one thing I wish to drive home to this audience is, that after the land is occupied you are not through with the problem. The one undeniable, unescapable, inevitable condition is, that the farms of the United States must be recapitalized at least three times in a century. This problem of recapitalizing the farm has been met in at least fourteen countries, but it has not yet been met in the United States.

Young men are born into the world with their clothes off. Few are born with a gold or even a silver spoon in their mouths. Those who inherit money seldom do so at the age of 21. There are in this country, to-day, approximately one million young men, between the ages of 18 and 22, inclusive, who will eventually occupy farms of the United States. Moreover, there are a million young women who are going to live with them and rear families. The farm is no place for a bachelor. All this is so unless the number of farms decreases or they are cultivated in the future by foreigners.

How are these young men to secure the six billion dollars' worth of capital required to possess a million farms? Whence will come the money to furnish the homes so that these young mothers may have just the ordinary comforts of life? When 160 acres of fertile land could be obtained free, we did not need to ask these questions. Now they are the most serious questions before the American people.

From the institution with which I am connected there were graduated last year 66 men who had studied agriculture. Only 22 per cent of these men had any farm, expected to inherit a farm, or to inherit any money with which to buy a farm. The average farm in this State is worth more than $16,000. How are these young men to get the capital or the credit with which to secure an average California farm? What is the use of educating young men in the practice of agriculture if they can not practice it? It is all very well to say that they should go to work and earn the money to buy a farm. Indeed, that is just what happens. For want of capital they go to work on a salary, and if they ever earn enough money to buy a farm they have reached an earning capacity that it is unwise to sacrifice, and what is more important they have reached a time of life when it is not advantageous either for their families or society that they should begin farming. Popular tradition to the contrary notwithstanding, the farm is not a place to return to after a successful business life, but rather a place to retire from after rearing a successful family.

Dr. Warren, of Cornell University, has pointed out that in southeastern United States the land is held at a lower price because two races occupy the land, necessitating two sets of social institutions. This greater overhead charge makes the land less valuable. In the large cities the people subdivide and stratify without special inconvenience. To see how beautifully it works one needs only to cross the Hudson River or San Francisco Bay by ferry at different hours of the day. Crossing at a certain morning hour you will find scarcely a person with a daily paper. Those who smoke smoke a pipe. Later in the day nearly every man carries a paper, and if he smokes it is generally a cigar. Each class goes back and forth over exactly the same channel, scarcely conscious of the other's existence and wholly without being in the slightest degree discommoded. It is a sample of the hundreds of ways in which people stratify in cities. Nor is there any criticism to be offered to the methods in vogue, although at times there may be certain manifestations which can not be commended. In the open country such stratifications are for physical and economic reasons impossible. In the city without any apparent impropriety you may not associate with the gentleman in the adjoining apartment because you do not fancy the way he trims his beard, but in the country you must associate with the man on the next farm, even though he he is constitutionally opposed to the use of a bathtub.

A not unimportant part, then, of the general problem we are discussing, is the fact that the open country can not afford to support numerous social, religious, and racial divisions.

One hot evening last summer I lay on the campus of the University of Missouri, listening to a sociologist while he discussed the rural social conditions in the southeastern part of the United States. He said that manufacturing industries were being introduced into the cities of the South. The white people were moving into the cities and colored folks acquiring the lands. I know nothing concerning the facts, but if the conditions are as he states, then God pity the southeastern part of the United States. For it is only a question of time until the cities also will be inhabited by colored people. If families in the cities raise less than two children and families in the country raise three or more, it does not require a profound mathematician to show what will happen.

The Census Bureau of the United States divides population into urban and rural. The urban population is composed of all persons living in towns of more than 2,500 inhabitants; the remainder comprises the rural population. On this basis there are one and one-half millions more persons in the urban population between the ages of 25 and 44 years—that is, of breeding age—than there are in the rural communities. On the other hand, there are 6,000,000 more children under 14 years of age in the country than there are in the cities. If we assume that all persons between the ages of 25 and 64 may be considered parents and all persons under 25 may be considered children, then we will see that every couple in the city raises a little less than two, while every couple in the country raises a little less than three children.[1]

As long as the people in the country raise larger families than those in the cities and the cities continue to grow faster than the country, it follows that in the cities every generation must be affected by the character of the previous generation in the country.

New York and Boston are rapidly becoming un-American cities for the simple reason that they do not raise enough children to maintain, let alone increase, their population. Almost exactly one-half of the people of Manhattan are foreign born. Less than 15 per cent have two American-born parents. Los Angeles has become the puritanic center of America; Boston is now the second Dublin of the world. Hoboken does not dare to have a parade on the Fourth of July. Unless our children occupy the country, our grandchildren will not occupy the cities. It is the people who occupy the land who will eventually inherit the earth.

Unless conditions radically change in three generations, or by 2015, the majority of its people will be descendants of peoples not now living in the United States. I do not say that the population will have retrograded, I trust it will have greatly improved, but I do assert that our progeny will be in the hopeless minority. The world has never before met the problem of enormous masses of people living in the cities. We can see the buffaloes disappearing but we seem blind to our own fate.

We hear a good deal these days about the best men of nations being sacrificed in the terrible conflict that is now raging and the effect this is going to have on humanity. As a matter of fact, this is of small consequence compared to what is going on in America (and elsewhere). The flower of the human race is unborn. It is not in the trenches.

About a week after the incident to which I have previously referred, I was traveling across the prairies of western Kansas. Passing a boy perhaps 14 years of age—possibly only 12—who was driving a load of wheat to the elevator, my companion remarked,

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[1] This is of course quite inaccurate from a statistical point of view, but it answers for the purposes of comparison. In making this comparison it must be remembered that a considerable body of young people between the ages of 15 and 24 have moved from the country to the city, while but few have moved from the city to the country.

"That boy is earning $2.50 a day." He sat there as proud as a peacock. He was earning more than $2.50 a day. The experience he is obtaining before reaching the age of 21 will be worth more to him than any bank account he will ever acquire.

The following are probably safe propositions:

1. No race nor any portion of any race increases abundantly unless the children are a material asset.
2. Farming is the one great industrial occupation in the United States where children are of economic advantage.
3. The training which children obtain in thus contributing to the family income is a factor of great importance to society. No equally efficient substitute for this training has yet been discovered.
4. In the long run it is of no particular advantage to any person to own a farm unless he intends to raise thereon a successful family.
5. Eventually society will probably, for its own protection, reserve the use of all agricultural lands for persons who wish to use them for that purpose.

What is said to be happening in southeastern United States has happened, is happening, and will continue to happen in many, indeed in most, rural communities, unless there is a very great change in existing conditions. The only difference is that the color line does not exist and most people do not notice the changes which take place. It is, however, just as easy to trace them. Let us see what usually happens:

A farmer raises a family of from three to five children that are born while the parents are between the ages of 25 and 40. Assume the parents live until they are 70. Of necessity, therefore, the youngest member of the family is 30 years of age. Ordinarily all the members of the family have obtained a foothold in some other business or have acquired an earning capacity which they do not wish to sacrifice in order to accept the responsibility of the farm. The usual result is that some other nationality or race with different economic, educational, social, and religious ideals takes the farm. With the death of the father the old Scotch Presbyterian or Irish Catholic disappears and the existing church languishes. Even if it is not a new race, but merely a plain American tenant, the condition is not much better. Often it is worse.

Let us assume another case, which is the normal one, as is shown by insurance statistics. A farmer marries between the ages of 20 and 25, has four children before he becomes 40, and between the ages of 55 and 60 dies, possessed of a farm worth $16,000. Under these conditions he may readily have one son of the age to assume the management of the farm. What must the son do? Having inherited one-fourth of the property, he must assume the indebtedness of the other three heirs or an obligation of $12,000. If there were a system of finance by which he could spread the payments over, say, 30 or even 20 years, he might be able to work his way out. Under present conditions a sale often occurs and the land passes into other hands.

If farms must be recapitalized at least three times in a century; if young men are born into the world without capital to finance them; if the permanence of society is dependent upon a rural population, not merely because it creates wealth, but because it grows children, then what are we going to do about it? To a man looking down from Mars without local prejudices it would seem that the system of finance which is so successful in other industries might be applied to agriculture.

The proposed land-credit system is merely the well-tried system of world-wide finance applied to agriculture. It is a means of putting farm mortgages on an investment basis. Stated in its briefest terms, it provides for loans payable in fixed annual sums of both principal and interest, secured by first mortgages on agricultural property, to approved borrowers and under approved conditions, for periods not to exceed, say, 35 years, with interest at not less than, say, 4 per cent. To make this operative, the Nation, State, or community may create a land-mortgage bank, with a trust fund, by legislative appropriation or otherwise. The trustees of this bank may issue and sell mortgage collateral bonds on the fund and on the mortgage securities of the fund not to exceed, say, 20 times the paid-up capital. The trustees may be authorized to frame regulations for the organization of rural credit associations and to make loans secured by first mortgages to members of such associations. These bonds may or may not be guaranteed by the Nation or the State. Such guarantee would doubtless enable the sale of the bonds at a lower rate of interest, at least at the beginning, but it is not necessary to the operation of the land-credit law.

Recently there came across my desk the annual statement of a life insurance company. Idly turning its pages, I noticed that this company possesses two hundred and fifty-eight million dollars' worth of railway bonds. These are nothing more than debentures secured by mortgages on railway property. The only difference between these railway bonds and land-credit bonds is that the railways never intend to pay back the principal, while in the case of the land-credit bonds the principal must be paid back in annual installments, covering a period of years, say, anywhere from 20 to 35 years. It is proposed not only to build railroads, to establish manufacturing plants and department stores, to pave streets, to construct waterworks and power plants, to erect courthouses, hotels, and apartments and to install luxurious restaurants, most of which is now done with other people's money, but also by means of land credit to build in the open country comfortable homes containing children.

The arguments sometimes made against land-credit systems that farm securities are not, for various reasons, looked upon favorably by banks, and because of these unfavorable conditions higher and varying rates of interest must be charged, is the strongest possible argument in favor of land-credit measures. It is proposed to give character to farm securities, so that a higher rate of interest need not be charged. By creating a liquid asset it is proposed to make a uniform interest rate to all, whether they are near or remote from great centers of capital.

How would this system work? Suppose the Nation, State, or community sells these collateral mortgage bonds at 4½ per cent and adds one-half per cent to cover expenses, thus charging the mortgagee 5 per cent, what annual payment would discharge the debt and interest in 25 years? Answer: Seven per cent of the principal. This plan would enable the great and growing body of farm tenants to become farm owners.

Ambassador Herrick, in his book on rural credit, shows that in 12 countries the annual dues, including interest, cost of business, and fraction of the principal required of the borrower for amortizing the debt form an annuity of only 3½ to 7 per cent of the loan. "In other words, the farmer in the countries named is given at least one generation, in some cases more than two generations, for paying back a loan, against three to five years in the United States, while the annuity is smaller, on the average, than the interest rate alone in the South and Western States." But the conditions are very different in other countries. Precisely so. That is exactly the reason that the conditions should be changed in this country. Under an efficient land-credit system the rate of interest on farm mortgages will be dependent upon the money rates current in New York, London, Berlin, and Paris and not upon the exigencies of a local bank. There is no more difficulty in Berlin dealing in American debentures secured by farm mortgages than those secured by railway mortgages.

The basic reason for issuing collateral bonds against land, as for issuing railway or industrial bonds, is that it is not proper for banks to use their deposits for long-time loans. All long-time loans should be taken up by people who wish to invest their savings. For years the savings of the people have been used in developing railways, manufacturing plants, department stores, public buildings, and city streets. A large part of the development of private corporations as well as the public improvement of cities, has been due to the savings of the people borrowed largely at 4 to 5 per cent. The land-credit plan is intended to allow the savings of the people to be invested in the land in order that a permanent agriculture may develop.

Men in cities now conduct great enterprises, enjoy comfortable transportation facilities, occupy luxurious offices and eat in sumptuous restaurants without having a dollar of their own money invested in these agencies except as they may carry life insurance or invest in stocks and bonds. The phenomenal development of the cities within recent years would have been impossible were this not so. Farming is the one great industry remaining in which men commonly invest their own money in order to engage in the business.

Some months ago the Commonwealth Club of San Francisco spent a dinner and an evening discussing this subject of land credit. For several hours the pro-Allies and pro-Germans of this subject held sway. After it was over two Australians rushed up to me and said: "We have been very much interested in this discussion. We do all these things in Australia. From our point of view there is nothing to discuss. We do it now." So they do. So do 13 other countries.

Some high minded but impulsive people have discussed seriously the bringing of Belgians to the United States and placing them upon the land. There is about as much probability of the Belgians coming to America in large numbers to settle upon the land, as there is that this audience will migrate to Siberia. Any industrious Belgian farmer can borrow money at 4 per cent and have sixty years in which to pay it back.

While the leading nations of the world are in competition to retain and increase existing population, we sit tight in smug content promoting a system of finance and land development which leads inevitably to our own extinction, without one gun ever being fired. To us the war in Europe is a small matter in comparison.

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64TH CONGRESS
1st Session

SENATE

DOCUMENT
No. 240

DIRECT DEALING BETWEEN PRODUCER AND CONSUMER

AN OUTLINE OF A PLAN

FOR

DIRECT DEALING BETWEEN PRODUCER AND CONSUMER, THROUGH THE PARCEL POST SERVICE, EMPLOYING MAIL-ORDER METHODS

BY

DAVID LUBIN

PRESENTED BY MR. FLETCHER

JANUARY 5, 1916.—Referred to the Committee on Printing

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

REPORTED BY MR. FLETCHER.

IN THE SENATE OF THE UNITED STATES,
January 7, 1916.

Resolved, That the manuscript submitted by the Senator from Florida (Mr. Fletcher), on January 5, 1916, entitled "Statements by Mr. David Lubin, American delegate to the International Institute of Agriculture at Rome, and others, relating to distribution of farm products," be printed as a Senate document.

Attest:

JAMES M. BAKER, *Secretary*.

FOREWORD.

The Southern Commercial Congress, inspired by Hon. David Lubin, American delegate to the International Institute of Agriculture, organized the American Commission that, in cooperation with the United States commission appointed by President Wilson, investigated agricultural finance, production, distribution, and organization in European countries.

A most important phase of the question is that which deals with distribution or marketing. Resolutions were adopted by the Southern Commercial Congress at the seventh annual convention held in Charleston, S. C., December 13–17, 1915, concurred in by the House of Southern Governors and the Southern Association of Agricultural Commissioners favoring national legislation along these lines. Said resolutions appear in this document following the hearings.

An opportunity is presented to aid in the marketing of the produce of the farm, direct to the consumer, with economic advantage to both producer and consumer, through the parcel post under the direction of the United States Post Office Department. With the desire to aid in the dissemination of information as to methods that may be employed in the development of this powerful agency, I have the honor to transmit the hearings herewith for publication as a public document by the Congress of the United States.

CLARENCE J. OWENS,
Managing Director.
THE SOUTHERN COMMERCIAL CONGRESS.

AN OUTLINE OF A PLAN FOR DIRECT DEALING BETWEEN PRODUCER AND CONSUMER THROUGH THE PARCEL POST SERVICE, EMPLOYING MAIL-ORDER METHODS.

The following presents an outline of a plan for bringing the producer and the consumer into direct business relations.

It is proposed to bring this about by adapting and using the labor-saving, the time-saving, and the money-saving methods operative in the important mail-order houses so as to build up a large direct-order trade between the producer and the consumer, all through the medium of the Parcel Post Service of the post office.

The mail-order business was born some 40 years ago. Under primitive and crude methods it struggled along for a foothold with, say, twenty-five or fifty thousand dollars a year as a high-water mark of "big" business.

To-day, due to the operation of its scientifically gotten up "tags," "forms," and "blanks," the larger mail-order house does a business of over $100,000,000 a year.

There seems to be every possibility that under similar methods of efficiency there would soon be built up a direct farmer-to-consumer and consumer-to-farmer business, and very much greater in volume than the business of all the mail-order houses over and over again.

How this may be done is shown by the plan set forth in the following report of three "hearings." The first in Washington, when experts of the post office gave their criticisms and opinions; the second in Chicago, with experts of Montgomery Ward & Co.; the third, also in Chicago, with experts of Sears, Roebuck & Co.

At the Washington hearing an objection was raised to this proposal on the ground that a system for such direct trading is already in operation; that it was put into operation by the United States Post Office Department as part of the Parcel Post Service.

A system is in operation, true, but it will be seen that it is even more primitive and crude than were the mail-order systems of 40 years ago. In fact, its present means are inadequate for the ends, hence incapable of making progress. Why? Because we are dealing here, first, with the producer; second, with the consumer; and third comes the post office. Here are three and heterogeneous factors to a transaction, and what have we got? This: The limited experience of each factor with regard to the details as a whole, and with the consequent limited power of generalization which this involves. All this would seem to preclude this service from efficient economic lines, hence from effective economic results.

A way, however, presents itself for the building up of this service on effective economic lines. That way would be the appointment of a Federal commission to take the matter up, this commission to obtain the testimony and opinions of farmers and of consumers, devise a working system, and for a limited time have the guidance of its operation. Said commission to be composed, on the one hand, of experts of the Post Office Department, and, on the other, of experts of the mail-order houses.

It is, of course, understood that all living rational human beings are in favor of economic benefits. The question is, Would there be a likelihood of such benefits through the effective labors of said commission?

The testimony shows that such benefits are quite likely to follow, and this testimony is from the head men of the largest mail-order houses in the world.

Who, then, are to be the recipients of these economic benefits? Who but the producers and the consumers—the American people.

Nor are the ultimate benefits to be derived to be limited to the small-package business merely. Once get this small-package business well on its way and in due time larger and still larger packages will follow. And when it does it will become necessary for us to revise the formula that "Money is the medium of exchange," by changing it into "Money is the standard of exchange," for at that time we will employ the word "medium" in a new sphere of action. We will employ it in connection with the Parcel Post Service of the post office, when it will read "The parcel post is the medium of exchange." At that time almost all exchange, almost all business, will be done through the post office. It is the post office and its Parcel Post Service that will free the farmer from the domination of the trusts and from the still more deadly Moloch, the law of chance and chaos. And at the same time it will free the consumer from the irksome impediments in the pathway of the law of supply and demand.

Time was when buyer and seller had to assemble and exhibit goods and the money and to engage in a great higgle-haggle, but that time is gone and, let us hope, never to return.

At this time about 90 per cent of the world's wholesale trade is done through exhibition of samples, which the buyer bears in his mind. Then come the orders by lot numbers and orders by telegraph and "open" orders—all with no higgling or haggling, and never in the world was wholesale business better performed. And in the retail small purchases, especially of food products, how many housewives nowadays go to the market with market baskets on their arms and pick out their own meats and vegetables?

So we see that the time is here for "ordering," but the true way to order, the most economic way to order, is from "first hands," and this applies especially to food products. In the distribution of food products, if the efficient mode of selling and buying be in operation, it gives the equities both to producer and to consumer. It does more; it frees the farmer from the vexatious and pernicious laws of chance, hence from injustice. With chance and injustice eliminated from exchange, with the rule of efficiency and equity in its place, it will not alone make the farmer economically stronger but it will do more—it will make this nation stronger and mightier than mere fighting ships or soldiers can make it; although these, too, should be had when wanted.

Before closing I wish to say that this measure is by no means intended as a substitute for the marketing proposal that was introduced by Senator Fletcher in the Senate and by Congressman Goodwin in the House during the last session as "H. J. Res. 344."

The marketing bill is now being revised, and shortly after this document will have reached the reader's hands the amended marketing measure will have been introduced, under the name of "The National Chamber of Agriculture."

The marketing proposal is, as it were, the completed circle of which this parcel post measure is but a segment of that circle.

David Lubin,
Delegate of the United States,
International Institute of Agriculture, Rome.

Washington, D. C., *December 27, 1915.*

REPORT OF A CONFERENCE ON A PLAN FOR THE EXTENSIVE UPBUILDING OF DIRECT DEALING BETWEEN PRODUCERS AND CONSUMERS.

Said conference was held in Washington, D. C., November 22, 1915.

There were present Senator Duncan U. Fletcher; Mr. Ryan, superintendent of the Division of City Delivery, United States Post Office Department; Mr. Matthews, superintendent of money orders; Mr. Pickett, Fourth Assistant Postmaster General; and Mr. David Lubin, American delegate to the International Institute of Agriculture at Rome.

Senator FLETCHER. How do you want to proceed in this matter, by asking questions or just by statements? Perhaps it would be a good idea, Mr. Lubin, for you to outline what you have in mind on the subject and then these gentlemen can address themselves to it as we proceed.

Mr. LUBIN. I want to state, Mr. Chairman and gentlemen, that an outline of the purpose of the meeting this morning is stated here in this paper, and I would suggest that the secretary run through it.

(The secretary read the paper, as follows:)

Mr. Chairman and gentlemen, a couple of days ago I presented to the Assistant Postmaster General, Mr. Roper, a proposal for the utilization of the parcel post for the purpose of bringing closer together the producers of food products and the consumers of the same. I gave a mere outline of the details of my proposal, with the suggestion to Mr. Roper that if the presentation seemed sufficiently tenable to warrant further elaboration it could be presented to a committee of experts of the Parcel Post Division of the United States Post Office Department.

This meeting, then, is the result of that suggestion.

In the presentation this morning it is only possible for me to give a mere outline of the subject, leaving the details to be worked out progressively in the event that the work goes along.

With this as a preliminary statement, I will now proceed.

It seems to me that the parcel post offers an opportunity of great service to the people, of service to the farmers of the country, and to the consumers of farm products in cities. It offers an opportunity of bringing the farmer and consumer into close and direct business contact. It offers an opportunity for more just and equitable distribution; a system of distribution calculated at the same time to benefit the producer and the consumer; a system that will enable the farmer to obtain a higher price than heretofore and at the same time to place his products in the hands of the consumer at a lower price than under the present system. It will enable the farmer, should his service warrant it, to earn and maintain a high business reputation, a business reputation that will be as valuable to him as such reputations are valuable to the city storekeeper.

Briefly, then, this is a proposal to blend into one service the services now performed by the United States post office on the one hand and by the mail-order houses on the other. It is a service that will require the embodiment of the technique of these two services into one.

The service that I have in mind has been rendered possible by the enactment of the parcel-post laws. Without the parcel post no such service could be had, but with the parcel post in operation it can be had.

I will at this time take up the subject by giving a brief outline of the technique of the mail-order system.

The first noticeable point in mail orders is the presence of a number of "tags," "blanks," and "forms." Some of these quite simple and some of them (to those who do not understand them) complicated and abstract. Without such "tags," "blanks," and "forms" it would be impossible to conduct a mail-order business, but with them it is now possible for some mail-order corporations in the United States to transact a business of $100,000,000 a year and over.

These tags, blanks, and forms were not devised in a hurry; the task of getting them out was not as simple as it would seem to be. Some of them were devised at the expense of much labor and considerable cost. Let us say that "Form A" is before us. On the face of it it looks as if some clerk drew it up on a sheet of paper in an hour and handed it to the printer, when the printed sheets were placed in the hands of the mail-order employees to fill in, and that was all. This, however, was not the case. The usual method is something on this order: Say "Blank A" is before us. How was it devised? The deviser of that form wanted to apply certain means to some given ends, and he had to have in mind each of the means, and to divide them into classifications, and all had to be designated and shown on that form. To bring this about in a coherent and consecutive manner it was necessary to bring before him the porters, the reserve stock people, the selectors, the correspondents, the examiners, the packers, etc., each of whom would be called for a statement and questioned and then cross-questioned. This, then, is the method for the purpose of crystalizing the details. It formed the raw material. Then came the shaping of the form, first, in the economic distribution of the spaces, and, secondly, for printing the "movements" of each person concerned in the handling of the "form." In other words, what the drawing and specifications are to the architect that the "form" is to the mail-order business.

The proposal under consideration will require such "forms." There should be few of them, and these few should be as complete as possible. They should be in various colors, one in white, say, to designate eggs; another in blue to designate butter; another in pink to designate chickens, etc. These forms should be sold by the Post Office Department to the farmers and to the buying public at a slightly higher price than the cost of printing them, thereby making this service self-sustaining to the Post Office Department.

To avoid several writings of names and addresses the farmers using these "forms" may be known by numbers. Let us say that the farmer orders a hundred of each color of these "forms," and we will presently see what he will do with them. But at this time we will take up the case of the Post Office Department.

The post office provides a series of racks containing slides, into which parts of the "forms" received back from the farmers are to be placed. The post office sells to the buying public purchasing books similar in form to a railroad mileage book.

Farmers desiring to enter under this system register their names and addresses at the post office. The city customer desiring to place orders obtains a "purchasing book" from the post office, and we are now ready for business. Before proceeding let us say that the post-office rules may decide that purchasing units shall be, for eggs 1 dozen, for butter 1 pound, and for chickens by the single one. Now we will proceed. Farmer "No. 40" has 6 dozen eggs for sale for which he makes out 6 white forms. He has 10 pounds of butter, for which he makes out 10 blue forms, and 5 chickens for which he makes out 5 pink forms.

The route carrier collects these forms from the farmer and sends them on to the post office. The post office tears off a portion of the 6 white "forms" and places them in the "egg rack." The post office also detaches a portion of the 10 blue forms and places them in the "butter rack," and also tears off a portion of the 5 pink forms and places them in the "chicken rack."

The next step is that of the public buyers—the customers. The housewife goes to the post office and reviews the cards in the racks. She wants eggs and she goes to the white "forms." She finds several hundred "forms" in the racks, say from one to two hundred, with prices quoted by each of them. She has heard "No. 40" well spoken of, so she orders a dozen eggs from "No. 40" for, say, 30 cents, and one chicken from "No. 10," at, say, 60 cents, making a total of 90 cents. She pays the 90 cents to the post-office clerk, who indicates same in her "purchasing form" book.

The next step in the procedure follows by the post office sending a portion of the "forms" back to the farmers concerned, who fill the orders. The route man on his return trip receives the goods from the farmer and tears off a portion of the form, which serves as a credit to this farmer.

At the end of each week the farmer fills in a third "form," which may be designated as a "total slip." He enters each item on its proper line and totals up all of the credits, and, say, it totals up to $10.50. Then the route clerk tears off the duplicate part of the form, which he hands to the farmer. He then sends the slip and forms back to the post office. The post office then remits the total amount due to the farmer, when the entire transaction is "closed."

In explaining, all this work would seem to be complicated and abstract, but in fact it is quite simple. It is in fact a combination of post-office and mail-order technique all simplified and reduced to the point of least resistance. It reduces selling and buying between the producer and consumer to the lowest denomination, so far as cost is concerned, and it brings the seller and the buyer into the most direct contact possible. It does the work that the mail-order mechanism does, but without profit to any outsider. This system avoids disappointment, as far as the buyers are concerned. When they order a dozen eggs from the cards in the post-office rack they are sure to get them, for under this plan the farmer, in sending in a card for a dozen eggs, has the eggs on hand in the first place, and he can not sell them to anyone unless he recalls that same card from the post office. This kind of selling would be about the same as a seat reserved in the theater or as a Pullman sleeper is reserved.

But supposing that farmer "No. 40' has poor eggs or poor butter or poor chickens, or at a higher price than the average. Well, in that case farmer "No. 40" does not work up a good reputation. He will sell less and less as time goes along. Supposing he cheats or gives bad goods A few complaints will deprive him of the right to hold any place on the racks at all.

And, now, supposing that farmer "No. 50" sells goods of prime quality and at reasonable prices. In time the business of this farmer would so expand as to justify him in extending his farm.

(Respectfully submitted by David Lubin, delegate of the United States International Institute of Agriculture, Rome, Italy, at a hearing before the parcels-post committee of the United States Post Office Department, J. C. Koons, chairman, Washington, D. C., Oct. 30, 1915.)

Senator FLETCHER. Mr. Lubin, I would like to get your idea about two things that occurred to me while the paper was being read. First, suppose a housewife in this city gives an order for eggs, and suppose the eggs come and there are three or four broken. Now, of couse, if you were dealing with a merchant you could straighten that out, but with a farmer 20 or 30 miles away, how could she protect herself?

Mr. LUBIN. It seems to me that the customer would have a great deal better protection, for the reason that it will take but a very short time when the farmer will find out that he has a reputation to sustain; a business reputation. He will be known, say, as "Number 40." And presently "Number 40" will become known for the quality of his goods, for his prices, and for the manner of his service. In the cities the value of the "good will" is an important asset to the merchant. At the present time farmers have no such "good will," but under the proposed system they could have. The farmer then would soon learn how to transact his business in a manner which would add to his business reputation.

The matter we are considering is but one of the segments in the circle of the marketing proposal, to be adapted from the Landwirschaftsrat, known as the National Chamber of Agriculture.

Senator FLETCHER. I want to get Mr. Lubin's view as to whether or not, under the proposed system, the farmers would not directly begin to charge the housewife just as much as she would have to pay to the dealer. Do you figure that there would be a saving to the consumer as well as an advantage to the farmer?

Mr. LUBIN. Yes; I think there would be. For the farmer, in fixing his own price, would be competing with all the other farmers offering the same products.

Senator FLETCHER. Mr. Ryan, we would be pleased to hear from the post office view of the subject.

Mr. RYAN. Assuming that the farmers will be able to supply the city population, what effect will that have on the small grocery store?

Mr. LUBIN. So far as these products are concerned the effect would seem to be material. The grocery store, however, by some changes in its line of goods could continue on just the same as ever.

Mr. RYAN. Assuming that it drives the grocery store man out of business, what effect would that have on articles that the farmer can not produce?

Mr. LUBIN. It may, if successful, shut up some few stores, but it would probably increase the business of those that remained.

Mr. RYAN. In what way would it increase their business?

Mr. LUBIN. Because the removal of blocks and clogs in the pathway of business increases its volume.

Mr. RYAN. The question is whether or not the grocery store is not a necessity to-day to the village or city inhabitant?

Mr. LUBIN. The same question no doubt came up in the matter of the hand weaver and the power loom; in the typesetter and the linotype; in the needlewoman and the sewing machine.

Mr. RYAN. Your system, then, will be the formation of what might be called a dry market?

Mr. LUBIN. Yes; an automatic marketing system.

Mr. RYAN. Our post-office system at the present time is to bring the farmer into direct contact with the consumer. Each farmer is listed under the articles produced; the producer chooses from these and makes terms for either one article or for continuous trade each week. Now, what objection is there to that from your point of view?

Mr. LUBIN. It seems to me that there can hardly be any comparison in the value between the work the post office does now and the contemplated work under the plan we are considering. The post office, in the development of its parcel post work, is trying to reach the farmer and the consumer in much the same way as some city storekeepers have by putting on their cards "mail orders are also filled." These storekeepers forget or do not know that mail orders can not be filled profitably by every "Tom," "Dick," and "Harry" storekeeper; that filling mail orders is a business requiring technical knowledge and scrupulous adherence to technical modes and methods.

Mr. RYAN. At the present time the post office circularizes among farmers in a radius of 150 miles. The names come in from those who have produce to sell. These names are listed, with addresses, under the articles they have for sale. We circularize throughout the city and distribute lists of those names. That gets the two—the consumer and the producer—together, so far as we can bring them together. Now, where is your method of bringing them together more logical than that?

Mr. LUBIN. Please state your question over again, when I will endeavor to answer it.

Mr. RYAN. Where is your system better in bringing together the producer and the consumer than the system now operated by the Post Office Department; that is, where will your system bring about greater results than our system?

Mr. LUBIN. Well, let us see. Let us assume that before us here is the post-office list of the farmers. We see on the list that Farmer Jones says he has chickens, and here we see that Farmer Smith has eggs, and here is Farmer Brown, who has butter. Now, say that the housewife gets that list. A few days after its receipt this housewife wishes to order. She must write a letter, and must have pen, ink, and paper on hand, also a stamp. If any of these are missing or in bad order that stops the procedure. But after all this is done there must be a trip to the post office to get a money order, and after all this labor, lo and behold, the said farmer has sold out. In that case it becomes the farmer's turn to take up the matter by writing a letter to the customer returning the money order. The customer will then have to go to the post office to cash the same, and neither farmer nor housewife have done any business except writing letters and visiting the post office. One such experience will finish the farmer and the housewife so far as this line of business is concerned. But in the plan we are considering all of these objections are removed. They simply would not and could not occur. Under this plan the farmer and the housewife would have all movements in connection with the order so well known and systematized as to substantially make them automatic.

Mr. RYAN. Would there be any objection on the ground that the Post Office Department was going into commercial business; in other words, make the Post Office Department the commission man?

Mr. LUBIN. The post office would not be in business in carrying out this plan; it would not be a commission man. It would do what it is doing now; it would serve the same as a letter carrier; it would be a parcel carrier between the farmer and the people of the city, between the producers and the consumers.

Mr. PICKETT. The agent, the post office, is to get no return except in the increased postage?

Mr. LUBIN. The post office is to earn no profit, but may charge sufficient increase in the cost for the "tags," "blanks," and "forms" to the producer and the consumer as to pay for the expense of operating this plan.

Mr. RYAN. Well, our present system has been so successful thus far that we have found it necessary to put on additional vehicles to deliver. So you see we are meeting with some success at the present time.

Mr. LUBIN. What is the volume of business that is being done through the present methods?

Mr. RYAN. I have not that. We are getting in those statistics now. We thought that perhaps the working people would profit by it. We circularized in the textile district, and it fell flat. The reason is that they buy on credit and pay when they get their pay. We then circularized among the middle classes, and we found our best results there and among the well-to-do, where price is not an object and where they have ready money.

Mr. LUBIN. You compare this post-office experience with that of the mail-order houses?

Mr. RYAN. They cover the United States; they have a larger field; and these people will save up until they get sufficient to pay.

Mr. PICKETT. I believe that the only reason that the post office is not doing a larger volume of this kind of service under the present system is that a great many farmers are trying to get as much for their goods now as it will cost you to purchase them from the grocery man after they have passed through a middleman.

Mr. RYAN. That is true.

Mr. PICKETT. At the same time I want to state that I have used the system myself very advantageously.

Mr. LUBIN. Let us see whether your post-office system is practicable. Here, for instance, let us suppose, is a list of the farmers. Let us say it is sent out to 2,000 people; then let us see what would take place. Supposing that on a certain day each of the 2,000 people were by some chance to send in their orders for a chicken to farmer "A," but supposing that farmer had only half a dozen chickens on hand that morning, what would happen? He would then have to write letters to 1,994 people telling them he had received their orders, but that he was out of chickens at the present time. He would have to put a 2-cent stamp on each of those letters and direct them to his correspondents. He would have to do more. He would have to cash a good many of the post-office money orders that were received and have new post-office money orders made out in place of them in order to return the money to the customers.

Nor is this all. He would have to do a great deal of correspondence, answer complaints and inquiries, and all this for a very small volume of business. All this not alone applies to a case of a farmer, but likewise so to the average storekeeper who tries to do a mail-order business without complying with requisite mail-order methods. This kind of business may only be done by a mail-order concern operating under a well-devised and technical system. All the defects here pointed out would not and could not occur under the plan we are considering.

It is to the credit of the Post Office Department that it has made a beginning, an effort to solve the problem. It is to its credit that it has gone so far as it has. But as we see, there are limitations to its knowledge. It is only familiar with the post-office modes of procedure, but in the work to be done it becomes essential that this be changed, be blended with the mode of procedure followed by the mail-order houses.

Mr. RYAN. How would you transfer the money from the customer to the post office and from the post office to the producer?

Mr. LUBIN. By a simple mode of procedure. The customer buys a purchasing book from the post office. The book resembles the mileage book of the Pennsylvania Railroad Co., containing printed and perforated slips.

The customer desiring to purchase will consult the color rack at the post office, which designates the product desired. Let us say that eggs are wanted. The egg rack contains, say, slips from several hundred farmers. The customer prefers to order from farmer "No. 40." For each dozen of eggs wanted a card is removed from the rack, on which the clerk designates the identity of the customer. The post-office clerk inserts these cards in an envelope for farmer "No. 40." At the same time the clerk will tear out of the purchasing book one or more coupons to cover the cost of the eggs. If the total of the purchase is more or less than the total of the coupons torn out, the difference is "punched" on the debit or the credit side of the torn-out coupons and in the next coupon in the book. The torn-out coupons are also inclosed in the envelope for farmer "No. 40." At "closing time" the clerk seals all the envelopes, when they are mailed to their destination. On receipt by the farmer of the envelope he puts the torn-out coupons aside as money, and the return cards are fastened to the package all ready for delivery to the route mail carrier on its way to the customer.

Mr. Pickett. It strikes me that the plan you are speaking of would involve quite a large number of operations.

Mr. Lubin. On the contrary, it involves the least number of operations. It takes quite a large number of words to explain to those who are not familiar with it. A mail-order man would understand it instantly.

Mr. Ryan. The class of farmers here designated are supposed to be men of business; but, as Mr. Pickett has said, the trouble with the whole proposition so far has been the farmers are charging too much for the articles they sell—more than the corner grocery is charging. The poor people haven't the money to pay for it daily. The rich man does not care what he pays. The middle class are those with whom we must deal. Now, our method is simple. Where the farmer sends to the customer he sends it C. O. D.; that is provided for. There he is sure of his pay, and, of course, the consumer knows the price she is to pay for it.

Senator Fletcher. How do you transfer that to the farmer?

Mr. Ryan. We bring the signed tag back to the office and issue a money order in favor of the farmer for the amount, less the fee; that is, if the amount collected were a dollar, we would send him a money order for 97 cents.

Senator Fletcher. Oh, I see; then the farmer pays the postage?

Mr. Ryan. That would only be 5 cents a pound and 1 cent a pound for all over that, which rates are raised according to the parcel post zones. We confine this to within 150 miles for the sake of the postage.

Mr. Lubin. I think you have given a strong defense of the present post-office system, from the post-office point of view, but is that final? In the first place, you probably labor under the impression that a farmer's products are stationary; that the lists he sends you on the first of the month are the products he will continuously have on hand and until you receive his next list for printing. Were the farmer here in front of us he could no doubt tell you an entirely different story. To-day a farmer may have 10 dozen eggs on hand and the next day none, and the day after none. Under the proposed plan the farmer deals with the customer through the post office the same as the Pullman car deals with the berths in its sleeper, or as a theater sells a ticket in advance. There is no confusion. There is no guessing, and the whole transaction is reduced to so simple a form that children could go through the transaction and do so rapidly and accurately. Under the present plan there must be letter writing by the customer and the farmer. There must be post-office money orders made and cashed by the customer and by the farmer. Then the post office has to do writing, and do much of it, and for large business the post office must have cashiers and lots of them. And with it all the business is so small and your expense so large that it would be a losing business for all concerned. It is a well-known fact that it does not pay to do mail-order business in an ordinary store. Mail orders may only be done profitably by a mail-order house. The post office, in its farmer-to-the-customer "business," is at present employing methods similar to an ordinary storekeeper filling mail orders. It is a clumsy, laborious, and costly method. Under the plan proposed the mode of procedure between the farmer, the post office, and the customer would be the same as in a well-organized mail-order house.

Mr. RYAN. The mail-order houses will send their catalogue to the purchasers; so do we. Our customers do the same thing. The mail-order house fills the order and sends it C. O. D.; we do the same thing. We deliver, of course, on regular trips; your mail-order house does the same thing. Where is the difference?

Mr. LUBIN. You first of all print the list? Where do you get hold of it?

Mr. RYAN. They come from the postmasters in the various sections of the country, and they send in reliable names.

Mr. LUBIN. The postmaster uses his judgment?

Mr. RYAN. Yes.

Mr. LUBIN. It may be questioned whether the postmaster is authorized to discriminate in this matter. I do not think he is. He must either take all or none. And the same holds good in the case of the distribution of the lists in the cities. Say these lists are being distributed in New York, for instance, there should be one for every one of the four or five million inhabitants, or they should not be distributed at all; otherwise it would be an act of discrimination.

Mr. RYAN. What protection has the customer against a dishonest mail-order house in San Francisco?

Mr. LUBIN. Ample protection; but that is not the point. Under the present system the post office is assuming the function of discrimination by selecting just which farmers it shall have on its list, and by limiting the number of people to whom these lists should be distributed. Under the plan we are speaking of there is no such discrimination. The racks in the post office have a certain number of spaces for each kind of product. Any farmer may select his space and under a few simple by-laws may maintain that space for an indefinite period.

Mr. RYAN. Would the Government have to pay for the cost of this plan?

Mr. LUBIN. No. It would be self-supporting, for the "tags," "forms," "blanks," and "purchasing books" sold by the Government would be sold to the farmer and to the customer at a profit to the Government. This profit would pay for the expense of carrying on the work. Under this plan all farmers are given the right to appear on the racks in the order of first come first served.

Mr. RYAN. The whole thing resolves itself into this: Have we a right to publish a list? And if we haven't such a right, then that must wipe out the card system of yours as well.

Mr. LUBIN. I beg to differ with you.

Mr. RYAN. I do not think you understand me on that. We want the postmaster to submit names of producers who will fill orders. There is no discrimination against John Jones because he is not a friend of the postmaster. We want a list of producers.

Mr. LUBIN. You admitted before that the postmaster uses his judgment as to whether the farmer was a reliable man. This is discrimination, which I think is contrary to law.

Mr. RYAN. No; he follows our request that we submit a list of producers and of their products.

Mr. LUBIN. That is a different proposition. In other words, the postmaster takes all, whether they are good, bad, or indifferent.

Mr. RYAN. No; I don't think the postmaster would send us a dishonest man's name.

Mr. LUBIN. And again I say if there is any discrimination it is quite likely to be contrary to law.

Mr. RYAN. We have taken names off the lists.

Mr. LUBIN. I do not think you have a right to do that.

Mr. RYAN. Well, we do that if a man shows he is dishonest in his dealings. His name is stricken from the list.

Mr. LUBIN. I am under the impression that if the post office uses this power, without giving this man a fair hearing, if you use any power of that kind it would be contrary to the spirit of the law under a democratic form of government. It may be done in Russia but not in the United States. But apart from this, please see how laborious the present system is—the amount of writing to be done. The customer has to write a letter to the producer. The producer has to write a letter to the customer. Then there is a large amount of writing in the post office. You must write the name, the address, etc. The customer has to do that, and the producer has to do that, and the post office must do a great deal of that over again. And if there is a post-office order there is more writing in making it out. Then there is more writing in cashing it, and then there is still more in canceling it. Under all this cumbersome system it would be unprofitable for the producer, unprofitable for the consumer, and unprofitable for the post office. Under the proposed plan all this is reduced to a minimum; all so easily performed that a child could do it. You have the consumer's name and address in your reference book, and you have the producer's name and address in a similar book. For the practicable purpose of filling the order you only use the number of the producer and the number of the consumer.

Mr. RYAN. But those are writing transactions?

Mr. LUBIN. Yes; once. Once these are recorded on the books they are thereafter known by numbers.

Mr. RYAN. How?

Mr. LUBIN. They are recorded at the post office.

Mr. RYAN. That means a visit to the post office?

Mr. LUBIN. Yes; or all concerned can use the telephone.

Mr. RYAN. Of course, that would cost a nickel and would add to the price of a dozen eggs.

Mr. LUBIN. Yes, if they go to a public telephone.

Mr. RYAN. Say the order under your plan is delivered to the farmer; then the farmer fills that order; then the next day the carrier collects the order; he pays the postage and sends it back to Washington. How will he notify the postmaster at the office of delivery of the amount to be collected from the consumer?

Mr. LUBIN. At the time he fills the order the producer has already in his hand the coupons from the consumer's purchasing book. That squares the transaction right there and then.

Senator FLETCHER. Take the illustration of the chickens? How can you specify on the coupon exactly what the chicken would cost on the slip?

Mr. LUBIN. The coupons have printed to the right and left figures from 0 to 9. One side is for credit and the other side for debit. And the odd cents, whether for debit or credit, would be indicated on the coupon and upon the next coupon in the book.

Mr. RYAN. Well, say the order is sent to the post office and shipped to the city. Now, then, what are the movements upon receipt of that?

Mr. LUBIN. They are distributed to the customers.

Mr. RYAN. How would this class of mail be distinguished from the vast amount of parcels that are coming in by the regular way?

Mr. LUBIN. The post office would know how to distribute these packages as quickly as the other mail, for they would have the name and address of the customer on the tags attached.

Mr. PICKETT. I thought you were explaining just now that the price was to be punched before the order left the post office.

Mr. LUBIN. Now, let us go over that again very clearly. You see, there are two ways. One is where the customer goes down to the post office and collects these cards and actually pays the money. That is the way it is on that paper I gave you. But I have told you that since that time the paper was written I have the plan modified by the sale of a purchase book. This purchase book saves the cost of a cashier for the post office.

Senator FLETCHER. When are the purchase coupons in the purchase book torn out?

Mr. LUBIN. When the customer orders at the post office.

Senator FLETCHER. Those who are authorized to do so by the postmaster?

Mr. RYAN. Then that would necessitate auditing for comparison between the amounts.

Mr. PICKETT. That would be the case in a great many instances.

Mr. LUBIN. Yes, it would require auditing; but that would be a very simple affair when compared to the constant cashiering and writing by the post office for a similar volume of business. One auditor steadily at work could do more in a day than several dozen writers and cashiers.

Mr. MATTHEWS. On this whole proposition, as I understand it, there is underlined in the whole matter certain fundamental economic principles that Senator Fletcher touched upon. I think both of the systems spoken of here are a practicable elimination of the middleman and a returning of the old barter-and-sale proposition that existed thousands of years ago. Coming down to your card proposition of your chickens, eggs, etc., you will have this proposition for your farmer to face, that during the whole time that the cards are in the rack he must hold them for sale until the time comes when he gets an order. He must return his chickens, eggs, etc. By our present method the farmer does not part with the goods until the time he receives an order from the customer. Under the present system the customer may write direct to the farmer, and the post office is limited absolutely to transportation purposes. By your open-market theory the post office must not only act as a transporter but as an agent for consumer and farmer. The Post Office Department immediately enters into the business of a commission man, the merchant. That is my opinion. The difference is that under the present system the post office is responsible only for trying to keep the lists showing responsible parties only. In your plan the Post Office Department acts as a market, and the sale of a card is the same as the sale of a chicken.

Mr. LUBIN. I think the facts in the case would justify us in saying that the case is just the reverse of what you believe it to be. When the post office, under the present system, makes a canvass, brings out a list of what it believes to be responsible farmers, and sends these lists on to the city people in the hope that they will become customers of said responsible farmers, what, we may ask, does all this mean? This, that the post office is then doing business of a canvasser, a merchant, a drummer, and at the expense of the Government, and all for a selected lot of farmers and for a limited class of customers; all at the expense of all the people of the United States. This is paternalism with a vengeance. Under the proposed plan all these objections do not appear. In our opening discussion we were told that only the so-called "better-class people," or was it the "well-to-do," that ordered goods through the parcel post; that the people other than these had no money to order goods through the mails; that they were obliged to buy their goods of the local dealer on credit. I do not think that opinion is final. I think that the mass of the people do not order because the post-office system at present is cumbersome and unprofitable. The mail-order business of the country would show that the largest volume of business by mail-order houses are just from the very people that your testimony says do not order through the present post-office system.

As to the objection of holding the post office responsible for quality and quantity, this need not be. The post office can print a notice "you are buying at your own risk."

Mr. RYAN. I think that if the post office is responsible for nothing, they should not give the orders.

Mr. LUBIN. Under the proposed system there would be no orders for the post office to give. It is simply sending messages to and from the producer and consumer. It is doing the work that a post office is supposed to do. Only the mode of procedure has been so shortened that it becomes much more profitable for the producer and consumer to avail of the post-office service for the purposes set forth.

Mr. PICKETT. Suppose a consumer goes to the post office and has several coupons removed from his purchasing book to be sent to farmer "No. 40" for several dozen eggs. Now, supposing farmer "No. 40" sends him a couple of dozen spoiled eggs, or that he does not fill the order at all. What then?

Mr. Lubin. Well, that is perhaps a possibility, but hardly a probability.

Mr. Pickett. The post office would be responsible then?

Mr. Lubin. In the first place, I believe that it is contrary to law to use the United States Mail Service for fraudulent or improper purposes. And, in the second place, when the opportunity for making a valuable "good will" for the farm has been opened out, what kind of an idiot would not that farmer be who would deliberately ruin his reputation in the way you suggest?

Mr. Pickett. If the post office sells a purchasing book to a person, does it not assume the obligation to see that he gets the worth of goods for it?

Senator Fletcher. That need not necessarily follow. The post office need not assume responsibility. The post office sells me a book containing slips. I have the right to cash the slips at the post office for my money back again, or I have the right to use these slips to pay for orders that I may send out. The slips are good for so much money or for so much merchandise. It is quite clear that the post office need not be held responsible for the quantity and quality of the orders.

Mr. Pickett. Then, would not this be a very doubtful proposition?

Senator Fletcher. That is the point. In my opinion I am under the impression that the question of responsibility lies with the producer and consumer and not with the Post Office Department. The underlying thought of the proposal is whether or not you gentlemen of the Post Office Service may not suggest a way of facilitating direct dealings between the producer and the consumer of farm products. Your present plan seems to be a step in that direction, although I tell you frankly I have never seen one of your lists; in fact, I did not know the system was in operation. I, perhaps, am only one of hundreds of thousands. While it may be good as it is, the question is whether or not it can be improved upon. Now, if there is some way whereby the producer can be brought into more direct touch with the consumer—the idea is, if possible, through the plan proposed or through some other sort of system that might be devised—whether by punching or tearing off coupons or by some other labor and time saving device, the economic distribution of farm products could not be facilitated? If it could be done, you will agree with me in the belief that it would be an excellent thing to do.

Mr. Lubin. Since we have been bringing out some of the uses that the "purchasing book" might be put to, it occurs to me that it can be used as a sort of post-office savings bank cash account with the signature of the owner in the book for identification. There is no reason why the coupons could not be used for drawing cash at any post office in the United States. This would largely do away with the cumbersome and time-consuming money-order system.

Mr. Ryan. Don't you think that some people would pretty soon begin to print books similar to those printed by the post office?

Mr. Lubin. It may be presumed that the same objection was offered to the proposal of paper money when it was first proposed. But now to return to the main question. Is it not to be assumed that the post office is willing to improve its service?

Mr. Matthews. I think we would be glad to get any information we can, and we want to improve our service.

Mr. LUBIN. I suggest that we adjourn this meeting to convene again at some future time. In the interval, I propose to take this matter up in Chicago with Montgomery Ward & Co. and Sears, Roebuck & Co., the two largest mail-order houses in the world. I will present the proposed plans to their chief experts and present their testimony at the next meeting.

Senator FLETCHER. The suggestion of Mr. Lubin to me seems to be in order, and should there be no objection we will so dispose of the matter this morning. I am certainly much obliged to you gentlemen for your attendance. If this movement can be materialized, if it can be made to benefit the producers and the consumers, it would have richly repaid for our time and trouble in this morning's discussion. Now, let us adjourn subject to call in the near future for another meeting.

HEARING OF MONTGOMERY WARD & CO., AT CHICAGO, ILL., TUESDAY, NOVEMBER 30, 1915.

Present: Mr. William R. De Field, chairman department of efficiency, Montgomery Ward & Co., Chicago, Ill.; Mr. E. P. Marum, also representing Montgomery Ward & Co.; Mr. E. Dana Durand, of the University of Minnesota, and Mrs. E. Dana Durand; Mr. David Lubin, delegate of the United States International Institute of Agriculture, Rome.

Mr. LUBIN (addressing Mr. De Field and Mr. Marum). Do you gentlemen represent Montgomery Ward & Co. at this meeting officially?

Mr. MARUM. Yes.

Mr. LUBIN. The paper that I have previously handed you briefly outlines the proposal before us, and I would be pleased to have your opinion on the same.

Mr. MARUM. As yet there has not been sufficient time for going over your proposal in detail. It appears to me feasible if the postal authorities were to take the necessary steps to install the required organization. Such a step would, however, require a good deal of care in the matter of detail. It would also require a considerable amount of missionary work both with the farmer and the consumer. With the farmer, to impress upon him the fact that his prices would have to be not only as low as the retail dealers in the community, but somewhat lower, to offset the advantage of the housewife in purchasing by telephone or in person, with immediate delivery by the local dealer. It would be necessary for the farmer to fully appreciate the necessity and the advantage of making low prices. It would be equally necessary to make known to the buying public the fact that the farmers were making lower prices than equal goods could be bought for through middlemen.

Mr. LUBIN. The gist of our inquiry this morning does not center on high prices or low prices, although that is an important point; it centers around this: Would the proposed plan of buying and selling expedite the business of distribution? If so, would it prove of economic advantage to producer and consumer? Think as you would, I could only arrive at an affirmative answer.

It was then that I determined to test the validity of this answer by submitting the plan to competent parties for their comments and criticisms. As the mail-order procedure is largely followed by this plan, I deemed it advisable, among others, to present the same to you. It explains why I decided to call upon Montgomery Ward & Co., one of the principal mail-order houses in the country, for their opinion.

Returning once more to the question of price, Does it not appear that the plan before us would, as it were, automatically approach the line of equity between farmer and consumer much more closely than at the present time?

At the present time the farmer must sell his product. But when? where? and how? are the several and relevant interrogation points ever before his mind. In the end he must either sell to some local buyer and do some large guessing as to the price or consign his products to the commission man and do a heap more guessing. It is a question of guess, guesser, guessing. All this, of course, is usually reckoned up to the law of "supply and demand." How disreputable the law of supply and demand would be were the present farmer's kind of buying and selling to be properly classed under it. The fact is that the farmer in his business transactions, so far as the United States is concerned, is really outlawed from the law of supply and demand. He buys and sells under the fool law of "chance and chaos." In buying and selling he does not know what he wants, but he wants it mightly quick. If the merchants and manufacturers were to do business in the United States as the average American farmer does, it would soon place the merchant or the manufacturer as far away from the law of supply and demand as is the American farmer away from it at the present time.

And now to return to the main point. In the paper that I handed you yesterday I have outlined the proposal that should come before us, the proposal that is to render the law of supply and demand operative in the dealings between producer and consumer, and I would be pleased to have your opinion on the same. I see that we have Prof. E. Dana Durand with us, a former Director of the United States Census, and I am sure we would all be pleased to have his ideas on the proposal before us.

Mr. DURAND. I should suppose that the methods outlined would reduce the cost of accounting and the disadvantages of doing business to a minimum. The main question that occurs to me is one of the expense of handling such small packages as would frequently be ordered in comparison with the cost of handling the same goods in bulk. Then there is a question of the kind of products that could be handled in small quantities. Then, again, there are some classes of vegetables which the customer likely would want to see before buying. In Minnesota and the Northwest generally the tendency is more and more toward associated creameries, and the creamery which produces considerable quantities would find it cheaper to deliver in bulk to some central merchant in the city rather than to send packages direct. There would, under the proposal, unquestionably be very considerable business, but it would not necessarily displace any very large fraction of the present method of distribution.

Mr. LUBIN. It would seem to me that the proposed plan could be made to serve its purpose on a fairly large plane if the products were standardized, with qualities designated as first, second, or third. As for quantity, that would depend, of course, upon the size or weight that the post office would permit.

Mr. DE FIELD. From a purely operating standpoint, the system as outlined by Mr. Lubin seems very feasible, but there are several points that are not quite clear to me. One is in reference to the price that the farmer would receive for the products which he offered for sale. Then, again, there is the question of there being sufficient demand each day or week in one community to use the products that are listed at that point. The scheme can, of course, be developed whereby a producer can list his products at several different points.

The consumer's needs could likewise be transferred from one station to another. All this so as to equal the supply and the demand. As to the prices which the farmer would charge, I don't believe there would be any trouble in the farmer setting a reasonable price. I don't believe it would have to be what might be called "low," for this reason: At the present time the producer sells to the town dealer, the town dealer sells to the commission merchant, and the commission merchant sells the same goods to the retail city dealer. Thus there are three profits. By cutting out these three profits we can easily see that the prices will be reasonable.

In my opinion, the greatest difficulty in introducing the proposal would seem to be in getting the housewife that she should order two, three, or four days prior to the time she needs the products. That, of course, was one of the problems which confronted the housewife in mail-order buying. But the present state of the mail-order business is, of course, the gauge of success in overcoming that obstacle, in overcoming it so thoroughly as is patent in our handling the thousands of mail orders which are now received by Montgomery Ward & Co. every day.

Mr. LUBIN. What Mr. De Field has now said is worthy of serious consideration. It will show what a scientific method, a scientific mode of procedure in the mail-order business will do. Let any ordinary department store try to compete with Montgomery Ward & Co. and they will find that with all their efforts of catalogue making and advertising they would fail. It would cost them more to fill mail orders than their ordinary sales in the store. It would cost them so much more that they would lose heavily on their mail-order business. This has been demonstrated over and over again, not alone by the small stores but by the largest as well. It is only through the scientific mode of procedure that the mail-order business has succeeded. The more technical and the more scientific their mode of procedure has been the more such mail-order houses have succeeded, until in the end these scientific methods have built up a few mail-order business houses in the United States that do a larger retail business than any other retailers in the world. In fact, there are but very few wholesale houses in the world that do as large a business as the principal mail-order houses do in the United States. It is for this very reason that I came to the conclusion that if we could introduce the scientific method employed by the mail-order houses into a system of direct trade between the producer and the consumer there would presently be built up a market for food products, a market that would largely benefit the farmers and the consumers. It is for this reason that I have put forward the proposal before us. When once in operation it would be reasonable to suppose that the system would soon evolve the mechanism for doing the business. It would soon evolve standardized qualities, it would soon evolve certain standard "knocked-down" and "collapsible" and returnable carriers, carriers that would eliminate the difficulties of packing and hauling the products. These carriers would go and come to and fro from the farmer to the consumer and from the consumer back to the farmer, and at a trifling expense. The proposal before us is an endeavor to reduce the movement for all concerned to a minimum, from which is to be derived the maximum benefits. During the time that the purchasing coupons are on their way from the post office to the farmer, the farmer would have his carriers all filled ready for his return tickets containing the names and addresses of the customers, to be attached to the carriers ready for the rural mail man, with the packages on their way to the customers.

Mrs. DURAND. In my opinion the proposal will have to be amended considerably to be an improvement on the system we have in Minnesota. We are furnished with lists of producers—where a number of us order together. Say we order 30 dozen eggs at one time, we then expect that the price would be lower than if we were to order 1 dozen at a time. That is a plan that appeals to the housewife, because it insures a supply for a week or 10 days with very little trouble. Women as a rule have but little loyalty toward any business house or organization. They will always buy where things are the cheapest. There will be no support for a scheme for the sake of the scheme itself. It would have to be proven to them as the easiest way of saving money. It is, therefore, a question to my mind whether the proposed plan would save more than the present plan of ordering in large quantities directly from the producer.

Mr. LUBIN. It does not necessarily follow that large quantities would be excluded from the system under this proposal. Neither does it necessarily follow that large quantities are always desirable, for if they were there would be nothing to prevent the hundred of thousands of consumers from buying in the cities in large quantities from the commission merchants. But we see from the rule that perishable products products are more desirable in small quantities; they are fresher and in more presentable condition.

Mrs. DURAND. Well, I mean to say this: We already have a system where we can buy direct from the farmers supplies, say for two weeks, under one order. If your proposal is to give us the products still cheaper it would necessitate buying in still larger quantities.

Mr. LUBIN. Would you prefer to buy in larger quantities than in smaller quantities?

Mrs. DURAND. Well, I would rather order 10 dozen at a time if I could get them as cheap as ordering 30 dozen.

Mr. LUBIN. But the plan we are considering does not preclude your ordering the larger quantity if you can get it cheaper. The underlying thought in the proposal before us is, that if the farmer can fill 50 dozen eggs in 50 carriers at one time to 50 people by simply tying on the 50 tags of 50 customers already addressed, he can afford to sell these 50 dozen eggs to the 50 customers very nearly as cheap as he could sell them to one customer. This is the underlying principle of a mail-order house. That is the reason why a mail-order house can sell a thousand shirts to a thousand customers almost as cheap as a wholesale house could sell a thousand shirts to one customer. This is the reason why mail-order houses, through scientific methods, through scientific modes of procedure, transact the great volume of business that they do. In fact, there is a greater security, a greater steadiness to the business, in having 50 customers for small amounts than in having one customer for the entire amount. A business hinging on one customer is like a tent depending on a rope of sand. But a business depending on many customers is like a tent secured by many guy ropes; it is held firmly in place.

Now that we have gotten through with general statements we are ready to take up the technical questions. In the carrying out of this proposal, is it not a matter that would require the joint technical mail-order and post-office knowledge?

Mr. **Marum.** I should say that it would be advisable to have the advice of people experienced in mail-order business; also people experienced in the shipping and handling of produce such as we are considering.

Mr. **Lubin.** Do you think it could be put into operation by a joint board composed of post-office and mail-order people?

Mr. **Marum.** I should prefer to have Mr. De Field answer the last question. As for myself, I do not believe that it would be feasible to install the proposed system complete and comprehensive. It should be started in the simplest manner possible. Its operation could then demonstrate its economic value.

Mr. **De Field.** It would seem to me that the men that would be selected for the experiment with one or two stations should, above all, be efficiency men, experienced both in respect to the post office, and experienced in mail-order business. But there don't happen to be any such men in the country. If we could find an efficiency man in the mail-order business and one from the post office I believe they could handle the situation better than any other combination that could be made. Really, the technical knowledge here required is to be readily evolved. It is largely a question of efficiency men at the head, especially so at the start.

Mr. **Lubin.** In substance, then, in fairness to the proposal receiving a fair trial, it should during its pioneering stages neither be placed in the hands of post-office officials exclusively, nor of mail-order experts exclusively. It should be placed in the hands of a commission of both, and these according to Mr. De Field should be efficiency men. I should like to ask Mr. Durand's opinion on this matter, an opinion based on his knowledge as former official of the Government, who has had twelve or fifteen hundred people under his charge.

Mr. **Durand.** Really, many more than that. It is not an unusual thing for the Government to call in a private citizen to aid in devising a system, and perhaps attempt to install it. That is done necessarily with regard to the planning and the guiding, especially so in the preliminary stages. The Post Office Department, subject to special act of Congress, creating a commission, could, if it had funds, work out the details of such a system.

Mrs. **Durand.** I wonder whether we could not be justified in considering the proposed purchasing book system a hardship. At the present time we pay as we go, some accommodated with credit for a reasonable time. In the plan proposed, however, the housewife must lay out her money in advance. I don't think every housewife can afford to buy $8 or $10 worth of coupons; that would be, as it were, like paying in advance.

Mr. **Lubin.** Yes; the problem here is a similar one that confronts the merchant. Shall he buy on long time or for spot cash? If for spot cash he usually pays in advance; often paying for his goods before they arrive from the factory to his store. Which of the two kinds of mechants—whether those that buy on long time or whether those that buy for spot cash—have succeeded is well known, and so with the economical housewife. She will presently learn that it will be to her interest to buy the purchasing book, in other words, she will learn to discount the future by economic advantage instead of storing up interest to pay in the form of credit prices.

Mr. De Field. It may be worth while for us to consider whether the proposal does not really involve as much labor or even more. Take, for instance there are the identification of the coupons and the auditing of the same. Would not this involve more labor than the present money orders?

Mr. Lubin. Let us see. I think the Pennsylvania Railroad Co.'s mileage book contains five coupons per page of 10 miles each or 50 miles per page—take it in a 1,000-mile mileage book. Would it be easier for each passenger to wait and have the railroad company's agent write out a separate mileage ticket for each 10 miles of the 1,000 than to sell one book printed and ready for the passenger at a moment's notice? Are not the printed mileage coupons much easier to audit, all having the same serial number, than would be a lot of written vouchers each with a separate serial number?

Mr. De Field. Well, it now seems to me that a successful scheme might be worked out to handle this business economically.

Mr. Lubin. In your opinion, do you think this could be done if the pioneering commission were to be composed of post-office experts merely or together with mail-order experts?

Mr. De Field. The theory of the mail-order business has been to eliminate the middlemen. Your plan is also the problem of doing away with the middlemen. It seems to me, therefore, that the experience of the mail-order people would be very valuable in the work.

Mr. Durand. I certainly think that mail-order men should not merely be asked to give testimony, but should be asked to become members of a temporary commission for devising the technical routine of the system.

Mr. Marum. I agree thoroughly with Mr. De Field excepting on one point. I think there should be some man on the commission thoroughly versed in cold storage and in the handling of produce.

Mr. Durand. There is a seeming difficulty in the way. It would seem to me that it would be quite difficult for the Government to obtain the services of really competent experts, for the Government pays less than competent experts can earn elsewhere.

Mr. Lubin. While that may be true as a general rule, it would be no insurmountable obstacle in the case we are considering. It is, as we know, a matter that concerns the producer and the consumer—it concerns all the people—and, therefore, will arrest the attention and the best thought not merely of post-office or mail-order experts but of thousands of people in all walks of life, all of which would tend, when once on its way, to perfect a system.

Mr. Marum. In my opinion, the most important of all these would be the mail-order experts.

Mr. Lubin. Why?

Mr. Marum. Because no other business gives the various details of shipping, handling, and expediting hundreds of thousands of small packages as expertly as mail orders.

Mr. Lubin. Is it not a fact that the success of the mail orders is largely due to its system of handling, assembling, expediting, and auditing through a system largely composed of signs and symbols? In fact, is it not to this business what shorthand is to writing?

Mr. De Field. Yes. We utilize every method that ingenuity can invent to handle our business accurately, speedily, and economically.

Mr. Lubin. We wish to tender our sincere thanks to Montgomery, Ward & Co. for their valuable information on this important subject.

HEARING OF SEARS, ROEBUCK & CO., AT CHICAGO, ILL., THURSDAY, DECEMBER 2, 1915.

Present:

Mr. Julius Rosenwald, president Sears, Roebuck & Co.; Mr. Albert H. Loeb, vice president Sears, Roebuck & Co.; Mr. I. Rosenfels, advertising manager Sears, Roebuck & Co.; Mr. R. P. Moffett, manager shipping department, Sears, Roebuck & Co.; Mr. C. D. Palmer, office manager Sears, Roebuck & Co.; Mr. O. C. Doering, general superintendent Sears, Roebuck & Co.; Mr. John Meier, assistant general superintendent Sears, Roebuck & Co., representing Sears, Roebuck & Co.

Hon. W. S. Goodwin.

Mr. David Mellor, manager Food Products Co., Wells Fargo Express Co., New York.

Hon. Gifford Pinchot.

Mr. Miller, American Express Co.

Mr. George P. Hampton, secretary National Marketing Association.

Mr. David Lubin, delegate of the United States International Institute of Agriculture, Rome.

Mr. Lubin. This is a proposal for the grinding down of the rough angles in the business of exchange of agricultural products, more especially for the purpose of bringing the producers of food products of the country and the food consumers of the cities into direct trade relation. Substantially, it is intended for the purpose of securing a profitable market for the producers of farm products and for the further purpose of reducing the cost of living to the consumers in the cities.

As we proceed along we will see that there are three main factors that are concerned in the operation of the proposal, to wit: The farmer, the post office, and the consumer.

We are to show a working plan whereby the products of the farm are to reach the consumer, as it were, automatically.

To understand the plan the better, it will be essential, for the time being, to set aside the present operation of buying and selling these products, and the present mode of procedure of the post office, and as a substitute for this we are to have a new mode, a mode on the lines of mail-order procedure. Through the use of certain "forms," "tags," and "blanks" we are to eliminate any unnecessary waste of time or labor or guesswork, all of which, it is claimed, will result in economic benefit to producer and consumer. It is for these reasons that I have asked for this hearing in order that we may obtain the opinions and advice, not alone of the post-office authorities and of the producers and of the consumers, but also of the mail-order experts. We all understand that yours is a leading house in the mail-order business, and we wish to know from you, gentlemen, whether you are to speak officially for the house of Sears, Roebuck & Co.

Mr. **Rosenwald.** Yes.

Mr. **Lubin.** Well, then, if this proposal is to be ultimately adopted, that which you will now say is quite likely to become part of the economic history of this Nation.

It has occurred to me that since the parcel post is in operation, food products in small quantities could be carried from the producer to the consumer through the medium of the post office, but not through present post-office modes of procedure altogether. It is purposed to largely employ the mail-order mode of procedure. And in saying what we have it is fully understood that mail-order procedure stops short at the beginning of the post-office service. Within the mail-order house there are "tags," "forms," and "blanks," all for the purpose of eliminating unnecessary waste of time, of labor, or guesswork, but the mail-order house, in dealing with the post office, must conform to the post-office usage, rules, and regulations. Under this proposal, however, the mail-order methods are to be introduced and employed by the producer, by the post office, and by the consumer. Whether this can be done under the present Federal law, whether additional Federal law will be required, may be determined hereafter.

I desire to bring the proposal before you as clearly and as quickly as possible. With this as an introductory, I will now proceed. Briefly, then, the postmasters in the larger cities are to provide a separate room, a sub-post office, for the transaction of this particular business. The post-office clerk in that room is to be provided with racks of different colors, each color representing a certain kind of farm product—white, for instance, to represent eggs; pink, chickens; yellow, butter, etc. Said racks to be of wood or metal and devised with numbers, in consecutive order, and with grooves, so as to hold certain numbered cards in the consecutively numbered spaces. In beginning this system the farmer registers his name and address at the post office and is given a number. This farmer, say, is "No. 40." "No. 40" buys a quantity of cards, on which are printed certain spaces to be filled in, and regulations governing the same. The farmer has in the meantime provided himself with certain containers or carriers, some of which are to be collapsible or "knocked down." The permanent containers are to be returnable. The rules are to provide that each egg card is for a dozen, each butter card for a pound, and each chicken card by the single one. And now let us see how farmer "No. 40" will proceed. He has for sale, say, 10 dozen eggs, 5 chickens, and 15 pounds of butter. He writes the price of each dozen eggs on 10 cards, one dozen for each card, or 10 dozen for the 10 cards, and inserts the cards in a printed envelope to be mailed to the sub-post office. He writes the price of each chicken on five cards for the five chickens and inserts the cards in the same envelope. He writes the price of a pound of butter on the 15 cards for the 15 pounds of butter on hand, putting them in the same envelope, and, on sealing, it is ready for the rural mail carrier. This closes the first part of the farmer's procedure.

The post office now goes a step further in the procedure. The envelope containing the cards from the farmer, say, farmer "No. 40," arrives at the sub-post office. The clerk slips these cards alongside their corresponding numbers in the space on the rack, the white cards for the egg rack, pink for the chicken rack, and the yellow for the butter rack.

In the meantime the housewife, the consumer, has provided herself with a post-office "purchasing book," said "purchasing book" to be similar in form to the mileage books used by the Pennsylvania Railroad Co., and is to consist of perforated coupons of stated amounts. And now we are ready to proceed with a transaction.

The housewife, taking her "purchasing book" with her, proceeds to the sub-post office. Having heard favorable reports of farmer "No. 40," she asks the clerk whether this farmer has any butter, eggs, or chickens for sale that day, and what the prices are. The clerk says, pointing to the racks, "Here are the racks; you may see for yourself. The white rack here is for eggs, the yellow rack yonder is for butter, and the pink rack there is for chickens. Select what you wish and hand me your 'purchasing book.'"

The housewife selects a dozen eggs, a chicken, and a pound of butter. The post-office clerk then removes one each of farmer "No. 40's" cards from their respective white, pink, and yellow racks, upon the back of which the housewife writes her name and address and hands them back to the clerk. The clerk then tears out from the "purchasing book" the coupons corresponding to the amount of the purchase and hands the book back to the housewife.

The clerk now proceeds a step farther; he incloses in an envelope for "No. 40" the cards which were taken from the racks, together with the coupons which were torn out of the purchasing book. He will insert in the same envelope the cards and coupons for any additional sales of the same farmer, and at the time of "closing" he will fasten the envelopes and distribute them for mailing.

During this interval farmer "No. 40" has placed his products in the "containers." On receipt of the envelope from the post-office clerk he will deposit the coupon-purchasing slips, which are his money orders on the post office, in a box or in his bureau, and proceed to fasten one each of his returned cards to the several containers, when they are now ready for the rural mail carrier. The next step delivers the package in the home of the housewife.

The final step is the farmer's listing of the week's coupons by number and amount of purchase on a "listing slip," the total of which is in figures and in writing, and in original and duplicate. At a stated time this farmer will hand the coupons and the total list to the rural mail carrier, who will sign and detach the duplicate, handing it to the farmer. He will then send original, together with the coupons, to the postmaster who will send the money for the week's transactions to the farmer through the rural mail carrier, who in handing it to the farmer will receive back the duplicate just spoken of. On receipt of this duplicate at the post office the auditing clerk there cancels the transactions for the week.

Mr. **Miller**. Who establishes the price for the farmer?

Mr. **Lubin**. The farmer fixes his own price. This in the rough is an outline of the proposed plan.

The Assistant Postmaster General informs me that the post office has been endeavoring to reach the same end, but by different means. The post office obtains lists of farmers having products to sell, from whom people may order. These lists are distributed to consumers so that they may place their orders direct.

Now, gentlemen, you are the technicians in this line of work, and it may be that your technical knowledge can be used in this matter to better the condition of the people, of the producers, and of the consumers. That is the reason why I have asked for this hearing.

Mr. Goodwin. I presume you want a most searching inquiry as to the practicability of this proposal, criticisms one way or the other, and the whole thing analyzed and dissected. If it is a practical proposition, it should be so stated. If there are things that won't work, we want them pointed out and the reasons given. We are here for information, not as teachers but to be taught.

Mr. Lubin. Yes; I coincide with every word which you have said.

Mr. Rosenwald. It occurs to me that the proposition depends upon the Post Office Department, if it has the power under the present law, to install a system which will save labor, energy, time, and money, there is no reason to my mind why it should not do so. Should such a system require supplementary laws they could be enacted. But care has to be taken even if it seems practical and economical in theory. The initial efforts should be largely experimental. The working plan must be developed by evolution just as our business has been. This business, for instance, did not start with a working system that it has to-day. It started in a very crude manner and is gradually being refined. And so with the proposal before us.

Mr. Hampton. Do you believe, Mr. Rosenwald, that the technique of the mail-order house can be connected up and made a part of the distribution of food products by the post office, simplifying the processes of the methods now used?

Mr. Rosenwald. By "connected up" you mean made a part of the mail-order-house business, but adapted to post-office methods?

Mr. Hampton. Made a part of post-office methods of distribution.

Mr. Lubin. Permit me to state right here that this is not a proposal to employ the mail-order houses in this work. The proposal is for direct dealing between producer and consumer, and in this dealing to so regulate, simplify, and economize each detail as to render the plan as a whole of economic value. At the present the economic methods employed in the mail-order house, its "forms," its "blanks," and its "tags" are made operative only up to the time when they connect up with the post office. As soon as it does it must stop short with its system and conform strictly to post-office usage and rulings. In the plan under consideration, however, it is purposed to divise, introduce, and operate under these economic methods; to have them operative from farmer to post office and from post office to consumer, as well as from consumer to post office and from post office to farmer.

Mr. Rosenwald. It would seem to me to be within the possibilities. Our people who have the devising of our methods would be very much better able to speak on that subject than I. I would like to ask Mr. Rosenfels for a statement, as he was with you yesterday when we went over the matter.

Mr. Rosenfels. Is it true that any proposed legislation arising out of the reports will include the details of the methods to be pursued?

Mr. Lubin. It is too early yet to answer that question. Our inquiry is at present in the preliminary stages.

Mr. Goodwin. Mr. Lubin, in your talk with the post-office officials did you find out whether the present law was not adequate to meet the ends in view?

Mr. LUBIN. No; I have not asked, because the proposal is as yet in its preliminary stage. At this time we are here to ask Sears, Roebuck & Co. to tell us whether, in their opinion, the proposal can be worked out.

Mr. ROSENWALD. The question is, can it be made feasible?

Mr. ROSENFELS. I should think such a plan might be worked out to a satisfactory conclusion.

Mr. ROSENWALD. I would be pleased to hear from Mr. Moffett, the head of our shipping room.

Mr. MOFFETT. From what I have heard of this matter of bringing the products of the farm direct to the consumer, cutting out the middleman and the commission man, I am firmly of the opinion that it can be done; but it will require a system probably finer than anything the Post Office ever attempted before. They will have to subdivide the country into small units; they will have to devise a system of purchase checks and on somewhat the same principle as selling stamps. Undoubtedly it could be worked out, but it is going to take time, as Mr. Rosenwald says. It will have to be perfected through evolution, just as this business, which was very crude at one time and is not half as refined to-day as it may be 20 years from now. The same thing will apply to the distribution of farm products from the farmer direct to the consumer.

Mr. ROSENWALD. Has not that been worked out in the parcel post?

Mr. MOFFETT. To some extent; the express companies also have some system in their pure-food department. If the Post Office takes up the proposition there is no reason why it can not refine it, and in the end make it easier for the consumer to buy direct from the producer. There are, of course, a number of things that will come up for consideration; for instance, the matter of perishable goods, that would have to be taken care of. I believe, however, that if the Post Office goes into the matter it can undoubtedly carry it out. But I want to ask, Mr. Lubin, would this system be for individual orders?

Mr. LUBIN. Yes; that is what I have in mind, but in the end it could also be used for collective ordering; that is, where a number of customers club together and ship by freight, but we are not concerned with that part of the subject at this time; we are simply concerned with individual orders.

Mr. MOFFETT. There would have to be standard packages. The farmer is not equipped to pack products so that they will ride safely unless he makes preparations for it.

Mr. LUBIN. Yes; and it will also be necessary to have "knocked down" or "collapsible" and returnable carriers.

Mr. MOFFETT. Another phase of the question would be the cost of transportation charges by parcel post. The commission man, for instance, would get the produce hauled to him at a very low rate of transportation, whereas the post-office rate for the first zone would be 5 cents for the first pound and a cent for each pound thereafter. Would the transportation charges be as much as the parcel-post charges? Then, the standardized packages, for instance, would cost something. All this would make quite a difference.

Mr. LUBIN. In your statement it seems to be overlooked that while the commission man has a profit his is not the only profit, for he does not sell goods direct to the consumer. He sells to the retailer, and the retailer sells to the consumer. There are, therefore, two profits. As for the cost of postage, it is high at the present time, because the parcel-post business is as yet in its infancy. If we give it sufficient scope, under some such plan as is here proposed, it is quite likely to increase in volumn in geometric ratio. The postage rate could then be reduced correspondingly. About 20 years ago the post office used to carry thousands of tons of "serial" trashy novels at the rate of 1 cent a pound for any distance throughout the country. Why, then, should it not carry farm products at a cent a pound and for any distance within this country? As for the standardized "carriers," they could no doubt be made collapsible and returnable, so that the same carrier would serve until it would be worn out, thus the cost would be trifling.

Mr. Palmer. How would some mail man in Nebraska know that the "carrier" is to be returned to a farmer in New Jersey?

Mr. Rosenwald. Mr. Meier, what is your opinion?

Mr. Meier. It would be almost impossible to answer that. I don't think it could be done. There are about six and a half million farmers, which would make quite a large directory. The "carrier," say, is marked "Number 40," and it would be "knocked down" and thrown in the mail, and it is supposed to go back to the sender automatically. How does the mail carrier know to whom it should go?

Mr. Moffett. It would be returned by the customer, addressed "Number 40," district 655.

Mr. Miller. The postmaster in that district would know the man?

Mr. Rosenwald. I don't think that would be an obstacle. I believe it could be worked out. The "carriers" would be returned like milk cans are returned to the farmers.

Mr. Hampton. There is absolutely no reason why the packages should not have the name and address of the shipper. They could be self-addressed, as it were.

Mr. Rosenwald. Yes; they could be stamped into the "carrier" or put on by tag.

Mr. Lubin. What is your opinion, Mr. Miller?

Mr. Miller. In my opinion we are talking about doing something for somebody, and we do not know whether they want it done. Would the farmers care to proceed ahead along these lines? Would the consumers be willing to go to the trouble that is necessary for the sake of the saving that might be made? It seems to me very doubtful.

Mr. Rosenwald. May I answer that question? I believe it would work out exactly as this business has worked out. We found originally that people were not willing to take the trouble to write for goods, but gradually they became used to the method, and in course of time I believe this would work out exactly the same way. When they found out what the saving was a great many people were willing to take the trouble that was necessary to make the saving.

Mr. Palmer. That is the point if it is economical.

Mr. Rosenwald. Exactly. The only thing that will promote this project is if it shows a sufficient percentage of profit to the farmer and saving to the consumer.

Mr. Hampton. I think all here clearly understand that the proposal is for direct trading between the farmer and the consumer.

We are told that this is already done under the parcel-post system in certain sections of the country, but that the present system has limitations; it is halted and retarded on account of obstacles in the way. The question put by Mr. Lubin is whether the mode of procedure can not be so simplified by the adoption of the technical methods employed by mail-order houses as to render direct business between the farmer and the consumer an economic advantage.

Mr. LUBIN. I would like to ask Mr. Miller under which plan would the farmer and consumer be more apt to avail of the parcel-post system, whether under the present plan of having the post office furnish a list of farmers with the products they have for sale or under the system proposed.

Mr. ROSENWALD. In answering your question affirmatively for your plan we would have to assume that it is already perfected. I do not believe that we have the perfected plan at this time.

Mr. LUBIN. When we go to the post-office officials or to the Members of Congress we must have some kind of a plan to submit, otherwise there would "be nothing before the House." But it would be presumptuous to say that the draft of a plan is completed and final. The proposal before us is simply tentative, and the question, therefore, seems to be perfectly relevant, under which of the two plans would orders be likely to follow?

Mr. MEIER. Unquestionably the customer would order under that plan which is the easiest and most profitable. Would you contemplate having the mail carrier deliver these goods to the consumer?

Mr. LUBIN. The post office would deliver the packages to the consumer.

Mr. MEIER. The consumer has a "purchasing book"?

Mr. LUBIN. Yes; the post-office clerk, as we were told before, tears off one or more coupons from the purchasing book at the time of ordering; that is all.

Mr. MEIER. Then the torn-off coupons from the consumer's book is an order on the post office for money and is placed by the post-office clerk in the envelop for farmer "No. 40"?

Mr. LUBIN. Yes. They are placed in a franked envelope and sealed and sent through the mail to the farmer at stated times.

Mr. MEIER. The trouble with that is that your transaction may originate in Chicago and terminate in Davenport. Are the coupons audited at some central place or are they audited in the various post offices? Is not all this quite complicated? The producer and the consumer should be brought together by the simplest possible methods, eliminating slips and numbers.

Mr. LUBIN. Your criticism seems to have created complications which need not exist. As far as the post office auditing is concerned, the small transactions would be from near-by places, when the auditing would be very simple, very much simpler than at present. So far as the large shipments of several hundred pounds from greater distances are concerned, there should be no difficulty to audit these also. Now, since you have told us that the producer and consumer should be brought together by the "simplest possible methods," will you be good enough to give us an outline of that "simplest possible method"?

Mr. Meier. The mail-order way affords the simplest method possible. An order from the consumer is sent direct to us, and we ship the merchandise. If the consumer in the city would know that a farmer outside of Chicago were reliable and write the farmer "Inclosed find 50 cents; send me two dozen eggs"; that would terminate the transaction. You would not have any further auditing, but you would have to have some central place that would guarantee the reliability of the shipper.

Mr. Lubin. Let us see if what you say is as simple as what you seem to think it is. In the first place, what do you mean by "some central place that would guarantee the reliability of the shipper"? In the next place the customer would have to know where and to whom to send the order. Say she gets that information from the lists now furnished by the post office. She would then have to obtain suitable pen, ink, and paper and write the letter; then she must have a stamp on hand, and then go down to the post office to get a money order to inclose. Thus you see there is considerable work at the start, not alone for her, but for the post office. Then the question comes, How much should the order be made for? She does not know; she has to guess and put a postscript in the letter asking for the return of the change, if any. The letter then finds its way out to the farmer, but when he receives it he has no eggs on hand, so he must either lay the order away until he has eggs and write a letter, then go to the post office and cash his money order, then make out a new money order to be returned to the customer. You see, Mr. Meier, your proposed simple transaction is not quite so simple when you try it.

Mr. Miller. There are two different methods of operation—one between the individual consumer and the individual farmer and the other between the individual consumer and an association of farmers. Would not the latter method be better, as the association would have plenty of eggs all the time in stock and have them in one place and be able to handle them?

Mr. Meier. I think that is true.

Mr. Pinchot. Does not that correspond to the mail-order idea?

Mr. Meier. Yes.

Mr. Pinchot. Do you think it would be possible for me as a consumer to go to the post office, buy 50 cents' worth of stamps, put them on a postal card, send it to the association, and say, "I want such and such product," then have the postal card with those canceled stamps passed through the association and be collectible from the post office somewhere else?

Mr. Meier. That is a simple method. The difficulty with the scheme that Mr. Lubin proposed, to my mind, is this: It definitely places the transaction between a farmer in a certain district and a consumer in that same district. It would be all right in a large city like Chicago, but all wrong in a small town.

Mr. Lubin. Let us now follow out Mr. Pinchot's plan. On paper it looks splendid. We have here, say, two dozen farmers in an association, and these farmers bring together in one place their eggs, chickens, butter, etc. These goods are first graded, the eggs are graded, so were the chickens and the butter and the rest of the products, all ready for packing. How is the equating to be done in the accounts between the various farmers? It would seem to me you would want considerable of judgment to be used. However small the account, you would want considerable of an accountant to arrive at the equities, but that is the least. You would require an elaborate system to assemble the products from the farm to the central station, and then you would require a very elaborate system at this central station to check and countercheck the arrival and departure of the consignments. Next would be required a thorough system of grading and packing, an intelligent system of distribution to the consumers, and that strictly according to the orders received. Then would come the needs for an equitable audit of the several and total accounts, the distribution of the funds, and the correspondence, which would include inquiries, complaints, claims, etc. There would, besides, under such a system, be all the letter writing, postal money-order making as now—in fact more. And after all, what would your central depot do with unsold goods on hand? Thus we see that the plan of a central depot is not as simple as it seems to be.

Mr. MILLER. I have had nearly three years' experience on exactly this problem, and the first question was to find a reliable person who would supply the various products. We have found very few of the individual farmers who were both able to supply a good article and in sufficient quantities to fill orders. For instance, if 10 women order, and the farmer has enough for nine, what is the tenth going to do?

Mr. LUBIN. Under the plan which I have submitted you avoid the cost, the labor, and the vexation, and the loss involved in assembling the goods of several farmers in one place. The farmer fills the small carriers as quickly as he would fill the large boxes for sending to the central place. He only sends as many white cards for eggs to the post office for the egg rack, for instance, as he has dozens of eggs on hand. Every card put in the post-office rack is the same as would be the reserving a berth on a sleeper or a seat in a theater. There is no disappointment for the customer and there need be no disappointment for the farmer. The farmer has thousands of people who would be anxious to place orders for his products in the cities provided it is of economic advantage to do so.

Mr. ROSENALD. The question comes down to this: Won't there be more consumers than product; won't there be more product than consumers? What is to be done with the surplus?

Mr. GOODWIN. This question, without qualification, leaves it open as to what is meant by "surplus." Is it the surplus engaged in the contemplated parcel-post system, or does it embrace all the productions of the farm? If of the former there would seem to be nothing to object to, for a farmer who is in a position to have all the people of a city for customers, provided his goods are of the proper quality and price, if he have a surplus he deserves to have it. His having a surplus would show that his products and prices are no inducement; are not wanted. If, on the other hand, the question refers to the total production of the farm, that will be taken care of by the larger marketing scheme, by the National Chamber of Agriculture (the measure that was introduced in Congress as H. J. Res. 344). The post-office feature that we are now talking about is but a small segment in the whole circle of distribution. The complete circle is to be embraced, as was said, under the National Chamber of Agriculture. Do you not understand it that way, Mr. Lubin?

Mr. LUBIN. Yes.

Mr. Palmer. I don't think you could ever work it out between the individual consumer and the individual producer.

Mr. Lubin. But we are told that it works even now through the farmers' lists and through correspondence. The question therefore remains, would you prefer the present system through correspondence, post-office money orders, etc., or would you prefer the system just explained to you?

Mr. Meier. The system as explained is vague and indefinite and would not be practicable. You could not have farmer "number 40" put his tags into three or four different post offices, because one post office might use all he had for sale.

Mr. Lubin. You have dogmatically said that the system outlined "would not be practicable." Would it not have been more fair to ask the question "How can it be shown to be practicable?" Again, if you knew that it would not be practicable you should in all fairness have given us the reasons why.. There can be no trouble so far as the slips and racks are concerned; every slip represents one dozen eggs whenever a proper slip is in any egg rack. If the farmer only has one dozen eggs he can not insert more than one egg card in the egg rack.

Mr. Meier. That is just one of the evidences of impracticability. If he puts in a slip and the eggs are not sold Mr. Farmer loses entirely because the eggs are not going to keep three or four days.

Mr. Lubin. You evidently think that the city housewife would not care for fresh eggs for 29 cents a dozen under this system, so long as she could, under the present system, get good, bad, and indifferent eggs at 42 cents a dozen.

Mr. Meier. I still can not see why it would not be better to let all the farmers notify the post office when they have eggs for sale and let all consumers who want to buy eggs go there for information.

Mr. Lubin. The post office could not engage in such work, because it can not transact business.

Mr. Meier. It would be an ideal proposition.

Mr. Pinchot. Mr. Hampton tells me that the post office is doing that right now; that it makes up lists of farmers and the products they have for sale, and that they send these lists to the consumers.

Mr. Lubin. If the post office were to send such a list to each of the consumers in Chicago how many lists would they have to send out per day?

Mr. Meier. About 2,000,000.

Mr. Lubin. Yes; they would have to send out 2,000,000 notices every day, for otherwise the perishable produce would get old.

Mr. Pinchot. We might point out that it is your own plan to receive daily lists of eggs, etc., and notify consumers.

Mr. Lubin. But can you not see the difference? To carry out the present plan in operation justly and logically you would have to send out 2,000,000 notices a day to the people of Chicago alone. Under the proposed plan, brought before you this morning, you have all the people of Chicago notified and for the merest fraction of the expense, and under what would seem to be a far more practicable working system. Besides, it may not have heretofore been questioned whether the post office has the right to make up lists, selecting certain farmers and rejecting others. Then again, whether it has the right to distribute those lists to certain consumers, leaving some out. All this indicates discrimination, making the post office authority, judge, and jury, and without sanction of law. Even if sanction were to be granted, it would be without precedent in the economic, juridical, or political history of the world for a post office to act as commercial agent and drummer.

The success of the mail-order business is largely due to the employment of certain "blanks," "tags," and "forms," which are in substance devices or symbols calculated to economize time, energy, and money. In the proposal before us it is intended to employ similar devices and symbols to be made operative between the farmer, the post office, and the consumer, all for the purpose of bringing the producer and consumer into direct business contact.

Mr. Rosenfels. It would be an ideal system for the farmer and the consumer if it would have the same result, but I do not understand that you have put forward a complete system.

Mr. Lubin. But so far as it has been put forward?

Mr. Rosenfels. Well, I answered that question before, by saying that such a system could be worked out.

Mr. Moffett. I think so, too; I think it might be made practical. There are some very good points in it, but there are a lot of things that have to be worked out and developed. I should say that in order to demonstrate that properly it ought to be tried out in some district. It ought to be put into actual operation, even if that is done on a small scale, before one could say with certainty whether it is practicable. At this time I do not think we have a right to say that it is not practicable.

Mr. Meier. It seems to me that no one present said it was not practicable—that they could not give a definite answer "yes" or "no"—but are of the opinion that it might be worked out successfully and economically.

Mr. Lubin. If you have the stenographer's report read over I think you will find that I presented this proposal tentatively. It is not claimed that the plan that has been set forth is complete from the alpha to the omega. I present it simply in the absence of any other working plan; and so far from believing it to be perfected and final, that is not my intention. It is proposed that the plan be further submitted; that it be submitted to farmers, to housewives, and to the post-office authorities. And perhaps that this should be done by a commission appointed by Congress. I thank you, gentlemen, for your valuable comments and criticisms, and we are especially very much obliged to Messrs. Sears, Roebuck & Co. for this hearing.

RESOLUTIONS ADOPTED AT THE SEVENTH ANNUAL CONVENTION OF THE SOUTHERN COMMERCIAL CONGRESS HELD IN CHARLESTON, S. C., DECEMBER 13–17, 1915.

Be it resolved (*sixth*), That the conclusions reached by the southern commissioners of agriculture in the sessions held this week at Columbia, S. C., and in the city of Charleston, S. C., in connection with this convention be embodied and made a part of our proceedings, said resolutions being as follows:

" Whereas the Association of Commissioners of Agriculture of the Southern States, after careful and painstaking consideration of the conditions existing in the several States, feels strongly that the hour has come when the solution of vital problems affecting production and distribution of the products of the soil must be worked out upon an intelligent, nation-wide basis; and

" Whereas it appears that the fundamental problem of soil conservation, upon which alone successful productions can be based, is well in hand and is receiving careful attention, both from the State and Federal Governments; and

" Whereas we find that the problem of distribution, with the many problems incidental thereto, while being agitated throughout the Nation, and while efforts are being made everywhere to find solutions, has thus far remained in a state of chaos, causing thousands of dollars to be wasted in well-meaning but unsound and uneconomic efforts and leading toward the entrenchment of autocratic rather than democratic methods of supposed solution; and

" Whereas it is manifest that this Nation, and particularly the South, is about to enter upon a heretofore undreamed of expansion of commerce, not merely swelling the volume of production in the home market, but also sending her products of the soil more and more into international trade, to the upbuilding of the material prosperity of the South and the Nation; and

" Whereas it would appear most reasonable and democratic that any effort made should involve the fundamental principles of cooperative action between individuals and be nation wide in its character; and

" Whereas it is a fact that other and older nations have builded and expanded their commerce and solved their problems of distribution upon the plans worked out by the best brains of those nations. looking only to efficiency and the elimination of chance or chaos in distribution methods, looking only to the elimination of waste in human energy, and as it is our privilege to avail ourselves of successful well-tried methods of procedure: Now, therefore be it

" *Resolved by the Association of Southern Commissioners of Agriculture*, That inasmuch as the demand for a solution of this problem of distribution is so insistent and general, the association hereby requests the Southern Commercial Congress to set aside on Thursday one or two hours for a full discussion of and for action upon the foregoing preamble and the following resolutions:

"'*Resolved*, That the Congress of the United States be, and is hereby, urged to pass an act modifying the terms of H. J. R. 344, introduced in the Sixty-third Congress, second session, for the fundamental principles for which we stand, as early as possible, looking to the creation in the Nation of a semiofficial national, State, county, and township system of chambers of agriculture, unattached to any purely official political department or bureau, and as a first step that the President of the United States should be authorized to appoint a national commission consisting of seven members; that said commission shall be authorized to grant to the township, county, and State charters for the purpose of bringing into existence a national chamber of agriculture; that whenever an application signed by not less than twenty-five members in a township is presented a charter shall be granted; that a county charter shall be granted when not less than one-half of the townships in the county have obtained charters and have perfected their organization; that whenever one-third of the counties in a State have been organized they may apply for and be granted a State charter; that when as many as twenty States have been organized they may proceed to elect national representatives, one from each State chamber of agriculture, and these representatives, so elected, shall constitute the semiofficial National Chamber of Agriculture, which shall succeed the original commission of seven and be empowered to grant all future charters and be vested with such other powers as may be designated by the Congress of the United States. The sole purpose of all the organizations shall clearly be set forth to be the facilitating and developing the marketing and distribution of farm products in a local and upon a nation-wide basis.

"'*Resolved*, That in our opinion such a system will be truly democratic, starting with the proper unit, the individual in the township, and operating by successive steps to the national elective body chosen in a democratic manner by the producers themselves, and in a cooperative manner, making every dollar expended to be conserved and put to cumulative use.'"

O

64th Congress
1st Session

SENATE

Document
No. 241

METRIC SYSTEM IN EXPORT TRADE

REPORT

TO THE

INTERNATIONAL HIGH COMMISSION

RELATIVE TO THE USE OF THE METRIC
SYSTEM IN EXPORT TRADE

BY

SAMUEL W. STRATTON

DIRECTOR OF THE BUREAU OF STANDARDS

PRESENTED BY MR. FLETCHER

JANUARY 6, 1916.—Referred to the Committee on Printing

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

REPORTED BY MR. FLETCHER.

IN THE SENATE OF THE UNITED STATES,
January 7, 1916.

Resolved, That the manuscript submitted by the Senator from Florida (Mr. Fletcher), on January 6, 1916, entitled "Report on the use of the metric system in export trade," by S. W. Stratton, Director of the Bureau of Standards, be printed as a Senate Document, with illustrations.

Attest:

JAMES M. BAKER, *Secretary.*

LETTERS OF TRANSMITTAL.

INTERNATIONAL HIGH COMMISSION,
UNITED STATES SECTION,
Washington, D .C., December 11, 1915.

MY DEAR SENATOR FLETCHER: I inclose the "Report on the Use of the Metric System in Export Trade," by Director S. W. Stratton, of the Bureau of Standards.

This report, as you know, was prepared at the request of the Secretary of the Treasury, Mr. McAdoo, for the use of the International High Commission on Uniformity of Laws. It was submitted to the last meeting of the commission on December 1, and after looking it over, Judge E. H. Gary, president of the United States Steel Corporation, remarked that he would like very much indeed to see this published and spread broadcast. Mr. John H. Fahey, president of the Chamber of Commerce of the United States, also remarked that he thought it would be of the greatest value to the business men of this country, and Dr. Rowe, secretary general of the International High Commission, who is intimately acquainted with South American trade problems, observed that if our exporters and manufacturers could realize the benefits which would accrue from the use of the metric system in the export trade he is quite sure that the system would soon be adopted. At all events, all those present, including the Secretary of the Treasury, agreed that the report is most excellent and deserving of widest publicity.

I therefore write to ask if it would be possible to have this printed as a Senate document, and if so, I would strongly urge that this be done. It is highly desirable that this be published at the earliest opportunity, for it is one of the first results of the work of the International High Commission, and we are desirous of circulating it as widely as possible before the members sail for South America, so that the business men can offer any suggestions they may have before that time.

Very sincerely, yours,

J. BROOKS B. PARKER,
Assistant Secretary General.

Hon. DUNCAN U. FLETCHER,
United States Senate, Washington.

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, D. C., September 28, 1915.

MY DEAR MR. SECRETARY: Among the minor topics on the program of the United States section of the International High Commission upon which most emphatically there seems to be need of searching discussion, is the fact that Latin America consistently urges that merchants and manufacturers of the United States adopt a more liberal attitude toward the metric system of weights and measures. While I do not go so far as to advise the following up of the recommendations made by some of the delegates to the First Pan American Financial Conference to the effect that adoption of the metric system be made obligatory throughout the American continent, I am at least convinced that our exporters will be more successful in extending their trade in Latin America if they will be prepared to use the metric system in quoting prices and in distributing catalogues at least as an alternative to the Anglo-American system of weights and measures.

I am aware that it would be the work of generations and would involve endless complications, if not waste, to change our present system for domestic use; nevertheless, it is equally certain that the development of our business relations, above all in Latin America, will require, among the lesser elements of its success, greater adaptability on the part of our merchants to the prevailing views on such matters.

For these reasons, therefore, I have decided to ask you if you will not be good enough to request the Director of the Bureau of Standards to prepare for the International High Commission a brief report on the attitude of our great manufacturers in the matter of the metric system. What we want to know specifically might be put as follows:

1. What proportion of manufacturers have adopted the metric system in preparing goods for export? Has their experience warranted an expansion of this policy?
2. What are the chief objections to such action? Are certain lines less adaptable than others?
3. What will be the effect upon the scale and tool trades of any systematic movement in this direction?
4. Ought we recommend the compulsory instruction in our schools in the metric system? Or might it be limited to high schools?

I assure you that the commission and myself will be very grateful to receive any practical suggestions that the director may feel warranted in making.

From other bureaus in your department you might be able to determine the percentage of manufacturers or commission houses using the metric system in price lists and catalogues.

It would greatly facilitate the work of the commission if we might have this brief report about November 1.

I am, my dear Mr. Secretary,
Faithfully, yours,

W. G McAdoo, *Secretary.*

Hon. William C. Redfield,
Secretary of Commerce, Washington.

Department of Commerce,
Office of the Secretary,
Washington, November 4, 1915.

Sir: In accordance with your letter of September 28, 1915, requesting a report upon certain phases of the metric system in relation to the export trade, I transmit herewith a brief report upon this subject. In connection with this report, I should add that specific statistics are not available either at the Bureau of Foreign and Domestic Commerce or at the Bureau of Standards. The report of the Bureau of Standards submitted herewith, however, deals with all the topics upon which you specifically request information and opinion, and at your request the director of that bureau has added a number of practical suggestions as to several incidental points.

Certain phases of the subject not specified by you would possibly be of considerable value to you in your consideration of the subject. For this reason, and since the subject is so important, a supplemental report will be prepared by the Bureau of Standards within the next few months which will be available for your use if you so desire.

So much has been said and written for and against taking further steps toward the metric system, and recent practical experience has disproven so much that has been written against it, that I venture to say that the Bureau of Standards is now in an excellent position to represent the enlightened opinion on both sides of the question as to what would and would not work undue hardship in connection with the export trade. The question no longer concerns the mere introduction of the system—it is already in widespread use in export business—but rather in what ways and to what extent its use may profitably be extended in the interests of our Latin-American trade.

The entire subject of the metric system in export trade is of vital interest to two bureaus of this department—the Bureau of Foreign and Domestic Commerce and the Bureau of Standards. The services of this department are at your disposal for any further assistance it can render, either to explain more in detail any points not sufficiently complete or in the collation of further data.

Respectfully,

WILLIAM C. REDFIELD,
Secretary.

The SECRETARY OF THE TREASURY.

METRIC SYSTEM IN EXPORT TRADE.

REPORT OF SAMUEL W. STRATTON, DIRECTOR OF THE BUREAU OF STANDARDS, ON THE USE OF THE METRIC SYSTEM IN EXPORT TRADE.

I. ANSWERS TO SPECIFIC QUESTIONS.

1. (a) What proportion of manufacturers have adopted the metric system in preparing goods for export?

To give exact figures would require a census of manufactures. The proportion is large if those firms alone are considered which seek export business. Most of such firms use the metric system to meet the need for intelligible catalogues and price lists, to meet in many cases also the insistent demand for products in metric sizes, and finally to satisfy the customs requirements of the country concerned. The enterprising exporter meets these requirements as fully as possible. The factories are conservative and require education, since they are not brought directly in such close touch with foreign needs. Exporters most earnestly favor the increased use of the metric system in the development and holding of foreign trade.

The following examples are given as a few typical of the large number of manufacturers who are already using the metric system, in some cases for both domestic and foreign trade:

American Locomotive Co.
Baldwin Locomotive Works (metric orders for locomotives, etc., are filled by the use of the metric system throughout).
Brown & Sharpe (supplies fine tools, gauges, measuring tools, made to measure in metric units).
Pratt & Whitney (metric gauges and standards).
Waltham Watch Co. (fine watches, metric system used throughout their works).
The Standard Tool Co. (twist drills, reamers, taps, chucks, milling cutters, and special tools).
Morse Twist Drill Co. (supplies lines of metric drills, etc., at same prices as those in customary units).
Bausch & Lomb Optical Co. (optical instruments and microscope supplies made up and sold in metric units).
Eastman Kodak Co. (supply metric focus scales on their cameras).
Lufkin Rule Co. (measuring tapes and rules, full line of metric tapes at same prices as those graduated in feet).
International Exporting and Importing Corporation (pack all exports in metric sizes).
Keuffel & Esser Co. (draughting instruments, and supplies, lines of metric sizes).
Powers-Weightman-Rosengarten (drugs and chemicals sold in metric containers when so ordered).
Library Bureau (library equipment and supplies, especially index cards and cabinets for libraries and offices—has used the metric system since its establishment.)
L. S. Starrett Co. (fine mechanical tools, full line of metric sizes, and of tools graduated both in metric and inch sizes).

This list might easily be extended almost indefinitely. A characteristic of even the more conservative manufacturer is his readiness when he really appreciates the situation, to put out rather full lines of metric products side by side with his regular line. It is striking that the availability of the metric products has been advantageous in many cases in domestic trade.

1. (b) *Has their experience warranted an expansion of this policy?*

With the growing use of the metric system at home and abroad, it is clear that not only is the policy of extending its use in manufacture warranted, but it is essential. A well-informed exporter said recently: "Our foreign trade can never be satisfactory until we meet the requirements of the foreign market." The same exporter attributed the difficulty in securing and holding foreign trade to our failure to use weights and measures intelligible to and usable by the foreign countries concerned.

Experience has shown the wisdom of giving metric equivalents in catalogues and price lists; customs regulations in metric countries already require metric marking of shipments; package goods in many lines are being put up in integral metric sizes. Common sense in shop practice quickly adapts itself to new methods when metric orders are to be filled—suggesting the easiest way to make the material to metric sizes, either directly by using metric tools and metric measures, or indirectly by translating the sizes into English units and using English tools and English measures. The latter method is open to all manufacturers with existing equipment. The direct method of working with metric tools is to be preferred. For example, a large and well-known locomotive works handled an order for 100 locomotives, all dimensions of which were in metric measure. Not a dimension was translated, and from drawing room to assembling, the job was handled in the metric system. The executive in charge of the works stated to a Government representative that—

> The adoption of the metric system for this and other orders did not cost a penny extra. We already work to all kinds of scales, even in our English units, and the metric unit simply added an extra scale. Our mistakes were fewer with the metric order and the loss for rejects less than on our regular line. The use of the metric system was indeed found to be easier in many respects, and we fill all orders for metric sizes of products in the metric system. That is the common-sense method and is no trouble at all.

A member of a large firm of exporters handling canned goods stated positively:

> The change over to the metric system in our line would not cost a cent. At the end of the season, when my stock of cans is used, I could make the change easily and without expense.

This same exporter stated that the metric system should be adopted as soon as possible. His recent tour of South America had convinced him absolutely of the necessity and desirability of this change. The question whether an increased use of the metric system is warranted should be answered emphatically in the affirmative.

2. (a) *What are the chief objections to such action?*

Certain objections have been suggested, among which five may be cited. These relate mainly to cost and anticipated difficulty and confusion.

(1) It is said that if the metric system is used, it would mean two systems instead of one. The fact that two systems are already in legal use in this country answers this objection. The time has passed to raise this point. The law of 1866, making the metric system legal for all purposes has resulted in a greatly increased use by manufac-

turers, many of which carry lines of products in both systems, one for domestic, the other for export business. It may be added that the use of the metric system for domestic trade is increasing.

(2) The cost is a second objection. The fact stated previously that firms opposed to the general adoption of the metric system already carry metric-sized products for export indicates that it is profitable to do so. Some of the most conservative firms have for many years carried such lines of metric products side by side with those based on the customary units. The experience is that the prices of such metric products are no higher than the corresponding English-sized products, especially measuring tools. A casual examination of tool catalogues is convincing on this point. An experience such as the manufacture of French locomotives in a Philadelphia locomotive works using metric measures for this purpose shows how by intelligent handling any anticipated expense can be minimized or even avoided.

(3) It is claimed also that much of existing information now in the workman's mind in customary units would be less useful when working in the metric system. The sufficient answer to this is that approximate equivalents easily learned permit ready translation during the short period needed to acquire the new knowledge. However, modern technical data cover too large a field and handbooks and tables are too widespread to require that large amounts of numerical data should be memorized. It is in fact a question whether this is not to some extent a harmful practice, since numerical data are subject to change as more exact values are obtained by research, the fact that even engineering handbooks quickly become out of date on account of such changes is conclusive on this point. However, any loss from this cause would be more than compensated by the gain in availability of foreign technical data which are now a sealed book to those unacquainted with the metric system.

(4) A common fallacy is that standard sizes now in customary units would have to be changed. Where a size is the most efficient size, it need not be changed. Where it is not the most efficient size, it should be changed whether we change our system of measures or not. Any efficient size may be retained and can be expressed equally well in metric or customary units or in both, as is often done. A vital consideration, however, is that in order to be permanent, standardization must be international, and since the large majority of the countries are using the metric system, and this is the only international system, world standardization can best be done in metric units.

(5) Some have felt that community of interest with England dictates that we retain the English measures. As a matter of fact, England long ago abandoned the troy pound, and we are using a gallon and a bushel which England discarded decades ago, so that in respect to all dry measures, all liquid measures, and the ton weight, American practice already differs from English practice. It is difficult for an American exporter to adapt himself to these measures in trade with England and her colonies as it would be for an American exporter to adapt himself to the needs of metric countries. Furthermore, the American bushel has values varying from State to State in such confusing diversity that wholesale grocers and commission

merchants have been driven to sale by weight. The fact that English exporters are using the metric system in exports is an equally cogent reason why we should do the same.

2. (b) *Are certain lines less adaptable than others?*

All products naturally can not be produced in metric units with equal facility. Textiles and machines appear to some to be less adaptable. However, in both of these lines our export business shows that even in metric countries there is some disposition to accept current products where quality and price outweigh the system in which they are manufactured. Many years ago the Waltham Watch Co. found it convenient to adopt the metric system in their large plant for all purposes. So much for delicate mechanism. Manufacturers of lathes are furnishing metric lead screws and change gears, and in small tools meeting the demand for metric sizes. Then in heavy machinery, such as that found in the locomotive, an example has just been cited showing that such manufacture is entirely profitable. In fact, notwithstanding adverse views of some as to the full use of the metric system, they are to-day making, and have been making for years, many products which meet the demands of metric countries giving such lines in their American catalogues. These include taps, dies, screw-thread standards, gauges, calipers, rules, which are being made to metric sizes. This was done without suggestion from the Government or any consideration other than profits. Since these are the lines of products from which the greatest difficulty was apprehended, it is quite clear that the more adaptable lines can readily meet the needs of export business.

If manufacturers and exporters in metric countries can prepare products acceptable in the United States and England with their different standard of measures, it is incredible that America can not reciprocate to meet the essential demands of metric countries by such reasonable use of metric terms in making or marking our products.

In such industries as experience difficulty, and there may be some, in using the metric system fully, it is believed that the suitable degree of conservatism will be compatible with the many industries where the metric system is more easily adopted. The canned-goods exporter quoted above stated that, to meet competition, he is constantly making changes in cans greater than that involved in adopting metric-sized cans.

In contrast to some of the above industries may be mentioned a large group of industries like grains, flour, chemicals, drugs, paints, and similar lines which involve no change in manufacturing equipment, but only a change (where that has not occurred) in the size of the container used. Flour, for example, is packed for Latin-American export trade in integral numbers of kilograms. A prominent cement-manufacturing company in a letter signed by its president, under date of October 27, 1915, states:

> All our business with South America is done on a basis of barrels of 180, 150, 120 kilos, respectively. In other words, in our export business with South America the kilo is the measure rather than the pound. This is true of all the cement that is exported from the United States. All manufacturers exporting Portland cement from the United States to South America are using the metric system as a base just as we are.

It should be stated in this connection that products which can not be made to metric sizes must be sold as they are or the foreign trade in them must be abandoned. This fact, however, should not in the least degree militate against the full use of the metric system in all other lines where those units can be used to the extent that foreign trade demands. In the textile industry, for example, one outspoken writer—not a manufacturer—speaks disparagingly of the metric system. It is important to guard against undue weight being given to such opinions when considering other lines of manufacture or sale. The large export business of the textile industry seems to indicate that the measures used in the factory are not involved to the same degree as in other lines. Usually all that is needed is that goods be sold by the meter in length, which is just as easy to do as by the yard. Furthermore the widths as given in inches are not exact when bought and an expression to the nearest centimeter would probably be nearer or as near the correct length as is at present given in inches.

While certain lines are less adaptable than others, it is quite clear that few if any firms will refuse to fill orders received in metric terms. They may try to fill the order in the nearest English equivalent, but more progressive and farsighted firms will look to the future and endeavor to meet as fully as possible the demands of their present and prospective customers.

3. *What will be the effect upon the scale and tool trades of any systematic movement in this direction?*

The effect will be, as in all considerable innovations, to awaken a measure of opposition, not in the sales departments but among the older workers among whom set practice has removed the fine edge of enterprise. Some well-meaning men have urged that English measures were working well enough and a change would be all but impossible. Yet the very firms concerned are using the metric system for their own profit. No more could be asked. The *extent* to which advance should be made toward the complete adoption of the metric system is the only question seriously discussed to-day, since its partial adoption is an accomplished fact. The metric system is coming into greater use daily in the United States so that we have already two systems not only in catalogues but in the factories which make and pack. There is not a scale or tool maker of any note to-day who is not making scales (weighing or measuring) or tools working to size such as drills, reamers, etc., who is not already making such products also to the metric sizes.

The effect will next be to awaken the ingenuity of the younger trained technical men in meeting the demands of the world market. Attention to the world units of measurement will in turn awaken their desire to assimilate the best in foreign practice in order to improve products and methods of manufacture. Newspapers and technical literature mention metric units hundreds of times more frequently than a few years ago. This is largely due to more rapid news service which precludes translation of units, to the better education of our technical and general readers in the knowledge of the system, and to the introduction of scientific methods in industry, which bring with them the metric units in which they were developed. The younger trained technical men may be trusted to meet the problems in using metric units. The change is naturally one of magnitude, but changes more sweeping have engaged most of our industries within a generation. The whole process of making electric lamps, for example, has been changed three times within a generation; one railroad has been rebuilt three times during the lifetime of men now living; and the practice of generating and distributing electricity is changing so rapidly that it is difficult to keep apace with it. In other words, industrial changes which in many cases mean discarding and scrapping expensive manufacturing equipment are being made in almost every line, and it is considered profitable to do so. No less in the scale and tool trades will a movement toward the international system of measures awaken the spirit of enterprise, and instead of confusion it will probably result in a new era in those industries.

4. Ought we recommend the compulsory instruction in our schools in the metric system, or might it be limited to high schools?

In metric countries the common units of the metric system are familiar to the children before they enter the lowest grades of the schools, as dollars, dimes, and cents are well known to our own first-grade children. The question of teaching the metric system is important. It is already taught in the high schools, since scientific instruction can not be given without the use of metric units, so the last part of the above question, No. 4, answers itself. The only question which remains is whether it should be taught in the lower grades.

The metric system, especially in its units of length, area, and volume, is a graphic illustration of our system of numbers, and the use of these units even in the lower grades would be valuable merely as a graphic illustration of arithmetical relations. If our coinage were also taught, the three decimal systems—money, measures, and numbers—could be taught together, mutually reinforcing each other. The "customary" weights and measures might profitably, on account of their complexity, be deferred. The practical gain in giving all school children training in the decimal money, measures, and numbers together would be inestimable.

It need hardly be added that the instruction in the metric system in the early grades should be limited strictly to the system itself, and not complicated as often done by translating units from one system to another. Such translation is the only difficulty experienced and this difficulty is only on account of the complexity of the English system. Each common metric unit should be learned from a concrete object having the unit size or unit weight, and measurements can be made by scholars at a very early age, and the results expressed directly in metric units. Its terms are so self-defining that the tables need not be memorized, but can be made up at will. The logical character of the metric system makes it of great educational value, as a mental tool. The need for translation from one to the other is very small, and disappears as soon as the metric system is made the common one. The mental economy of the metric system, it has been shown, is inestimable.

II. PRACTICAL SUGGESTIONS.

1. Serious obstacles to foreign trade.

The reasonable use of the metric system to the extent demanded by export business will break down three serious obstacles to trade extension in Latin America (where the metric system has been adopted and is in use). These three obstacles which will be largely removed are (*a*) the nonusability of nonmetric products in metric countries (in some cases); (*b*) ignorance of foreign market conditions, opportunities, and statistics which to the nonmetric business man are not well known; and (*c*) the ignorance in those foreign countries as to our available products and their units and prices, owing chiefly to inability on the part of the great mass of possible buyers to readily understand our measures.

2. Willingness to handle metric orders.

The example of many manufacturers in handling metric orders has solved the shop problem of making many of such products directly in the metric system. Any manufacturer who through ignorance, fear of confusion, or lack of enterprise is unwilling to attempt to meet the requirements of foreign trade should confine his attention to our domestic trade. He should not, however, be permitted to retard the development of foreign trade by his inertia or indifference to the metric system, which is now the legal system in 34 of the countries whose trade we seek. Still less should his opposition or his opinion have consideration in comparison with the judgment of those who seek earnestly and by all possible means the extension of trade with metric countries. The subject is too important to be decided by any except those who are either using the metric system or willing to do so to the full extent that the export trade demands. Recent experience has shown that many of the manufacturers can successfully make the change without undue difficulty.

3. Existing modes of use of metric system in export trade.

In using the metric system to promote export trade with metric countries, common sense should take the practical turn of deciding how far its use is profitable, and go at least that far. For example, the present modes of use of the metric system in export trade (and incidentally meeting growing metric demands in domestic trade) may be grouped as follows:

(*a*) Complete use of metric system in designing, making, and selling.

(*b*) Price listing in metric equivalents (to enable the foreign buyer to understand quantities and prices).

(*c*) Packing products in units of metric size (this can be done in cases like flour, oil, etc., and does not involve change in manner of making).

(*d*) Labeling metric equivalents on the unit packages the contents of which may be put up in customary units.

(*e*) Stenciling shipping cases for export with the quantities in metric units to meet the customs requirements in metric countries (the metric countries are 34 in number).

(*f*) Filling metric orders with the regular sized packages or products, merely billing in metric terms to enable the buyer to check price. From a strict business view, sufficient use should be made of the above-described modes to meet the essential requirements of the market we seek. All of the uses described will be found among our exporters. Naturally the more complete the use the greater the gain, for exporters will agree that the more complete the use of the metric system the easier it is to obtain foreign orders. From this point of view no argument is necessary.

4. Adequate facilities and aids in using the metric system.

Aids and facilities for using the metric system in promoting export trade are available as never before. Metric sizes of material, metric gauges, metric measuring instruments, are increasingly accessible, as indicated by the catalogues. So, too, metric data are found everywhere, in handbooks, tables of equivalents, charts, and rules. The Bureau of Standards has three publications—a pamphlet descriptive of the metric system, a graphic chart of the system, and a book containing definitions and tables of equivalents. These are obtainable by exporters without charge upon application, By the use of simple change gears lathes may be used to cut metric screw threads and other metric work, and manufacturers of such machinery will equip such lathes with metric lead screws upon request. Furthermore, common sense will cooperate with ingenuity in meeting any exigencies that may arise, with efficiency. Never has the pressure been so great from all sides—foreign demands, scientific organization, the urging of the selling end of the business—and never were the facilities for making the change as complete. The difficulties have been greatly overstated, the present opportunity is unique, and must be taken at once if we would get and hold the foreign business of which until now we have merely dreamed.

5. How far should the metric system be used?

The practical danger in using the metric system is not that we may go too far, but that we shall not go far enough. The "easiest way" may in the end be costly. Merely to price-list products in metric units may be ample in many cases. In others the goods must be packed to the acceptable sizes current in the foreign markets whose trade we seek. In still others, as in the case of drills, measuring tools, gauges, etc., the sizes must be strictly metric to meet the needs of the shops in metric countries. Exporting and commission firms have favored the metric system and take advanced ground in this subject. For example, an experienced exporter said recently:

> Every exporter is in favor of the metric system. The exporters are all convinced. The exporters have for 30 years been trying to educate the manufacturer to the necessity of using the metric system.

It must be admitted that the American manufacturer, however progressive in pushing methods of making things for domestic use, has not attacked the foreign trade problem with his usual resourcefulness. It is doubtful whether manufacturers fully realize the merits of the metric system and what it means for world trade. Under such circumstances, to ask them whether they consider it wise to extend its use in their factories is beginning at the wrong end. The Government should to a great extent take the lead and cooperate with the exporters in educating the manufacturer to the intrinsic merits of the metric system both because of its scientific perfection and because of its world-wide use. In this respect our manufacturers have taken less advanced stands than countries like Sweden, Norway, and Denmark, not to speak of France, Germany, and China.

6. *Extent of use of the metric system.*

The extent to which the metric system is used in foreign countries is not realized even by well-informed manufacturers. The inclosed summary shows the legal status of the metric system in the countries of the world. A second summary inclosed shows the legal status of the metric system in the United States. Its use in science and medicine is almost world-wide.

The significance of this status is enhanced by the fact that China, a country of 400,000,000 people, is now in the process of adopting the metric system. After a world-wide investigation of the subject, the weights and measures commission of China reported that the metric system should eventually be adopted. They have therefore this year promulgated the metric system as legal and official, and a transition system based on the metric system as an alternate. The Chinese steel works at Pan Yang (near Hankow, the southern terminus of the Pekin-Hankow Railroad) several hundred miles up the Yang Tse, was laid out in the metric system, buildings, grounds, and roads being planned and completed in metric units. The rails produced by this plant are also made so many kilograms to the meter and measure so many meters in length. Likewise the great project for reclaiming the flood districts along the Grand Canal is laid out in the metric system. There is a distinct tendency in this direction.

With the metric system adopted in Europe, Latin America, and China, our isolation with respect to units of weight and measures becomes steadily more complete. Already our liquid and dry measures are unique among the nations of the world, differing even from those of England. It is therefore a most serious question whether we can afford to continue a system out of harmony with the rest of the world. Unification of weights and measures is quite as urgent a matter as the universal systems of longitude and time. Such unification has been accomplished in scientific work the world over, and in 34 countries for other purposes; the latter is sufficient evidence of its feasibility.

Commerce, technology, and science have, on account of their international character, availed themselves of the advantages of the metric system more than manufacturing, which is local, and, unlike exporting, not in direct touch with world markets. Hence science and commerce with their world-wide outlook should be the advisers of industry, and their conclusion is that the first principle is to supply what the customer needs, and that international business requires international weights and measures. An exporter of New York City stated emphatically:

> We shall never have a satisfactory foreign trade until we meet the requirements of the foreign market, one of the principal requirements being the use of metric measures when seeking the trade in metric countries.

7. Far-reaching effects of the use of the metric system.

There is a deeper point of view which should not be ignored. In addition to great incidental advantages in the use of the international metric system, such as easier selling, greater satisfaction to buyers, and proximate profits, there are more far-reaching gains which can not be overestimated.

Each industry has had its special units. For decades these have been unifying, not merely within each industry, but all the industries have been coming to a common standard. At the same time the unification has already taken place in scientific work. The relation between science and industry will become closer and result in the quicker application of new facts discovered by science. The lack of such an intimate relation has been seriously to retard industrial progress. It is a striking fact that the industrial utilization of scientific discoveries made in the laboratory has sometimes taken decades to accomplish. This was true of the gas light, the incandescent light, the arc light, the dynamo, wireless telegraphy, etc. A common system of weights and measures is in a sense a universal language which more closely unites countries in those respects in which their interests are one and the same, namely, the promotion of science, commerce, and industry.

A common system of weights and measures will also aid in realizing one of the aims of the high commission in securing the unification of law and practice. Above all, the effect upon the comity of nations in having a common language of measurement will be to add one more bond of mutual understanding to the forces tending toward permanent international peace.

S. W. STRATTON.

The SECRETARY OF COMMERCE,
Washington, D. C.

THE INTERNATIONAL METRIC SYSTEM.

LEGAL STATUS OF THE INTERNATIONAL METRIC SYSTEM IN THE LEADING COUNTRIES OF THE WORLD.

The status of the metric system in the several countries of the world is shown in the following lists drawn from the official sources cited in section 4.

1. *Metric system obligatory (34 countries).*

(Population, 437,330,000.)

Argentina.
Austria.
Belgium.
Brazil.
Bulgaria.
Chile.
Colombia.
Congo.
Costa Rica.
Cuba.
Denmark.
Finland.
France and colonies.
Germany.
Guatemala.
Holland and colonies.
Honduras.
Hungary.
Italy.
Luxembourg.
Mexico.
Nicaragua.
Norway.
Peru.
Portugal and colonies.
Rumania.
Salvador.
Servia.
Siam.
Spain.
Sweden.
Switzerland.
Tunis.
Uruguay.

2. *Metric system optional (11 countries).*

(Population, 727,283,000.)

Bolivia.
Canada.
China.
Egypt.
Great Britain and Ireland.
Greece.
Japan.
Paraguay.
Russia.
United States of America.
Venezuela.

3. *Adhering to international metric treaty (26 countries).*

(Population, 683,523,000.)

Argentina.
Austria.
Belgium.
Bulgaria.
Canada.
Chile.
Denmark.
France and Algeria.
Germany.
Great Britain and Ireland.
Hungary.
Italy.
Japan.
Mexico.
Norway.
Peru.
Portugal.
Rumania.
Russia.
Servia.
Siam.
Spain.
Sweden.
Switzerland.
United States of America.
Uruguay.

The above countries maintain at joint expense at Paris the International Bureau of Weights and Measures for the custody and comparison of the fundamental international metric standards to which all metric units, measurements, and national standards of the world are referred.

4. *Reference.*—For lists given in sections 1 and 2 above see page 93 of "Les Récents Progrès du Système Métrique: Rapport présenté a la cinquième Conférence Générale des Poids et Mesures, Réunie a Paris, en Octobre, 1913," by Ch.-Ed. Guillaume, associate director, International Bureau of Weights and Measures.

For list given in section 3 above see page 4, "Rapport spécial financier aux Gouvernements des hautes parties contractantes sur les exercices de 1914 et 1915," prepared by the Director of the International Bureau for the International Committee on Weights and Measures.

LEGAL STATUS OF THE INTERNATIONAL METRIC SYSTEM IN THE UNITED STATES.

"The Congress shall have power to * * * fix the standard of weights and measures." (Constitution of the United States.)

THE METRIC SYSTEM LEGALIZED.

"It shall be lawful throughout the United States of America to employ the weights and measures of the metric system." (Revised Statutes of the United States, sec. 3569, 1866.)

THE METRIC STANDARDS ADOPTED AS FUNDAMENTAL.

"The office of weights and measures * * * will in the future regard the international prototype meter and kilogram as fundamental standards in accordance with the act of July 28, 1866." (Order approved by the Secretary of the Treasury, Apr. 5, 1893.)

FOREIGN POSTAL RATES BASED ON METRIC WEIGHTS.

"The Postmaster General shall furnish to the post offices exchanging mails with foreign countries, and to such other offices as he may deem expedient, postal balances denominated in grams of the metric system, fifteen grams of which shall be the equivalent, for postal purposes, of one-half ounce avoirdupois, and so on in progression." (Revised Statutes of the United States, sec. 3880.)

METRIC WEIGHTS USED IN THE COINAGE.

"The weight of the half-dollar shall be twelve grams and one-half of a gram; the quarter-dollar and the dime shall be, respectively, one-half and one-fifth of the weight of said half-dollar." (Revised Statutes of the United States, sec. 3513.)

CONGRESS PROVIDES METRIC STANDARDS FOR THE STATES OF THE UNION.

"*Be it resolved by the Senate and House of Representatives of the United States of America in Congress assembled*, That the Secretary of the Treasury be, and he is hereby, authorized and directed to furnish to each State, to be delivered to the governor thereof, one set of the standard weights and measures of the metric system for the use of the States, respectively." (Joint resolution of Congress approved July 27, 1866.)

UNITED STATES JOINS IN ESTABLISHING INTERNATIONAL BUREAU.

"The high contracting parties engage to establish and maintain at their common expense a scientific and permanent international bureau [1] of weights and measures, the location of which shall be at Paris." (Extract from convention of 1875, signed for the United States by the United States ambassador to France.)

CONGRESS ADOPTS THE METRIC UNITS FOR ELECTRICAL MEASURES.

It was enacted by the Senate and House of Representatives that the international electrical units based on the metric system "shall be the legal units of electrical measure in the United States." (Revised Statutes of the United States, Supplement, vol. 2, chap. 131, 1894.)

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[1] This bureau has the custody of the international standards of the metric system, to which all metric prototypes of the world are referred for verification. It was established and is maintained jointly by all the principal governments of the world.

METRIC SYSTEM REQUIRED IN THE MEDICAL WORK OF THE NAVY DEPARTMENT.

"The metric system of weights and measures shall hereafter be employed in the Medical Department of the Navy." (Order approved by the Secretary of the Navy, Apr. 15, 1878.)

METRIC SYSTEM REQUIRED IN MEDICAL WORK OF WAR DEPARTMENT.

"All requisitions, invoices, receipts, and returns pertaining to medical supplies will be in accordance with the metric system of weights and measures. After the 30th day of June, 1894, the use of this system in writing official prescriptions is desired; on and after the 1st day of January, 1895, such use is hereby ordered." (Order approved by Secretary of War, Apr. 13, 1894.)

METRIC SYSTEM RECOGNIZED AND ESTABLISHED IN PORTO RICO.

"The metric system of weights and measures * * * is recognized and established in Porto Rico for use in all industrial and commercial transactions." (Acts, 1913, legislative assembly.)

METRIC SYSTEM MADE THE LEGAL SYSTEM IN THE PHILIPPINE ISLANDS.

"The metrical system of weights and measures as authorized by sections 3569 and 3570 of the Revised Statutes of the United States and at present in use in the Philippine Islands shall be continued." (Philippine tariff, rev. law, 1909; Stat. L., vol. 36, pt. 1, ch. 8, sec. 9, p. 137.)

METRIC SYSTEM REQUIRED IN UNITED STATES PUBLIC HEALTH SERVICE.

"Officers shall, for all official, medical, and pharmacal purposes, make use of the metric system of weights and measures. In expressing quantities by weight the term, of 'gram' and 'centigram,' and in expressing quantity by measure the term 'cubic centimeter' only shall be employed." (Regulation promulgated by the President Nov. 21, 1902.)

EXTRACTS FROM AMERICAN CATALOGUES.

The following pages contain random extracts from American catalogues showing uses of metric system—tables, data, and price lists—and also products made to metric sizes.

SYNOPSIS OF METRIC SYSTEM AND EQUIVALENTS.

[From a domestic catalogue.]

The Metric System.

The metric system is based on the meter which was designed to be one ten-millionth (1-10,000,000) part of the earth's meridian, passing through Dunkirk and Formentera. Later investigations, however, have shown that the meter exceeds one ten-millionth part by almost one part in 6,400. The value of the meter, as authorized by the United States Government, is 39.37 inches. The metric system was legalized by the United States Government in 1866.

The three principal units are the meter, the unit of length; the liter, the unit of capacity; and the gram, the unit of weight. Multiples of these are obtained by prefixing the Greek words: deka (10), hekto (100), and kilo (1,000). Divisions are obtained by prefixing the Latin words: deci (1-10), centi (1-100), and milli (1-1,000). Abbreviations of the multiples begin with a capital letter, and of the divisions with a small letter, as in the following tables:

MEASURES OF LENGTH.

10 millimeters (mm)	=1 centimeter	cm
10 centimeters	=1 decimeter	dm
10 decimeters	=1 meter	m
10 meters	=1 dekameter	Dm
10 dekameters	=1 hektometer	Hm
10 hektometers	=1 kilometer	Km

MEASURES OF SURFACE (NOT LAND).

100 square millimeters (mm^2)	=1 square centimeter	cm^2
100 square centimeters	=1 square decimeter	dm^2
100 square decimeters	=1 square meter	m^2

MEASURES OF VOLUME.

1,000 cubic millimeters (mm^3)	=1 cubic centimeter	cm^3
1,000 cubic centimeters	=1 cubic decimeter	dm^3
1,000 cubic decimeters	=1 cubic meter	m^3

MEASURES OF CAPACITY.

10 milliliters (ml)	=1 centiliter	cl
10 centiliters	=1 deciliter	dl
10 deciliters	=1 liter	l
10 liters	=1 dekaliter	Dl
10 dekaliters	=1 hektoliter	Hl
10 hektoliters	=1 kiloliter	Kl

Note.—The liter is equal to the volume occupied by 1 cubic decimeter.

MEASURES OF WEIGHT.

10 milligrams (mg)	=1 centigram	cg
10 centigrams	=1 decigram	dg
10 decigrams	=1 gram	g
10 grams	=1 dekagram	Dg
10 dekagrams	=1 hektogram	Hg
10 hektograms	=1 kilogram	Kg
1,000 kilograms	=1 ton	T

Note.—The gram is the weight of 1 cubic centimeter of pure distilled water at a temperature of 39.2° F.; the kilogram is the weight of 1 liter of water; the ton is the weight of 1 cubic meter of water.

METRIC AND ENGLISH OR AMERICAN (U. S.) EQUIVALENT MEASURES.

MEASURES OF LENGTH.

1 meter= 39.37 inches.
3.28083 feet.
1.0936 yards.
1 centimeter=.3937 inch.
1 millimeter= .03937 inch, or
$\frac{1}{25}$ inch nearly.
1 kilometer= 0.62137 mile.

1 foot= .3048 meter.
1 inch= 2.54 centimeters.
25.4 millimeters.

MEASURES OF SURFACE.

1 square meter= 10.764 square feet.
1.196 square yards.
1 square centimeter=.155 square inch.
1 square millimeter=. 00155 square inch.

1 square yard= .836 square meter.
1 square foot = .0929 square meter.
1 square inch= 6.452 square centimeters.
645.2 square millimeters.

MEASURES OF VOLUME AND CAPACITY.

1 cubic meter= 35.314 cubic feet.
1.308 cubic yards.
264.2 gallons (231 cubic inches.)
1 cubic decimeter= 61.023 cubic inches.
.0353 cubic foot.
1 cubic centimeter=.061 cubic inch.
1 liter= 1 cubic decimeter.
61.023 cubic inches.
.0353 cubic foot.
1.0567 quarts (U. S.).
.2642 gallon (U. S.).
2.202 lbs. of water at 62° F.

1 cubic yard= .7645 cubic meter.
1 cubic foot = .02832 cubic meter.
28.317 cubic decimeters.
28.317 liters.
1 cubic inch= 16.387 cubic centimeters.
1 gallon (British)=4.543 liters.
1 gallon (U. S.)=3.785 liters.

MEASURES OF WEIGHT.

1 gram=15.432 grains.
1 kilogram=2.2046 pounds.
1 metric ton= .9842 ton of 2,240 pounds.
19.68 cwts.
2,204.6 pounds.

1 grain=.0648 gram.
1 ounce avoirdupois=28.35 grams.
1 pound=.4536 kilogram.
1 ton of 2,240 lbs.= 1.016 metric tons.
1,016 kilograms.

MISCELLANEOUS.

1 kilogram per meter=.6720 pound per foot.
1 gram per square millimeter=1.422 pounds per square inch.
1 kilogram per square meter=0.2084 pound per square foot.
1 kilogram per cubic meter=.0624 pound per cubic foot.
1 degree centigrade=1.8 degrees Fahrenheit.
1 pound per foot=1.488 kilograms per meter.
1 pound per square foot=4.882 kilograms per square meter.
1 pound per cubic foot=16.02 kilograms per cubic meter.
1 degree Fahrenheit=.5556 degree centigrade.
1 calorie (French thermal unit)=3.968 B. t. u. (British thermal unit).
1 horsepower= 33,000 foot pounds per minute.
746 watts.
1 watt (unit of electrical power)= .00134 horsepower.
44.24 foot pounds per minute.
1 kilowatt= 1,000 watts.
1.34 horsepower.
44,240 foot pounds per minute.

TYPICAL METRIC DATA TABLES IN A UNITED STATES CATALOGUE.

THE METRIC SYSTEM.

MEASURES OF LENGTH.

Myriameter = 10,000 meters = 6.2137 miles.
Kilometer = 1,000 meters = 0.62137 m. or 3,280 ft. 10 in.
Hectometer = 100 meters = 328 ft. and 1 inch.
Dekameter = 10 meters = 393.7 inches.

Meter = 1 meter = 39.37 inches.
Decimeter = .1 of a meter = 3.937 inches.
Centimeter = .01 of a meter = 0.3937 inch.
Millimeter = .001 of a meter = 0.0394 inch.

MEASURES OF SURFACE.

Hectare = 10,000 sq. meters = 2.471 acres.
Arc = 100 sq. meters = 119.6 sq. yards.

Centare = 1 square meter = 1,550 square inches.

MEASURES OF CAPACITY.

Name.	No. liters.	Cubic measure.	Wine measure.
Kiloliter	1,000	cubic meter	1.308 cu. yds.
Hectoliter	100	.1 cubic meter	2 bu. 3.35 pks.
Decaliter	10	10 cu. decimeters	9.08 quarts.
Liter	1	1 cu. decimeter	0.908 quart.
Deciliter	.1	.1 cu. decimeter	6.1022 cu. ins.
Centiliter	.01	10 cu. centimeters	0.6102 cu. in.
Milliliter	.001	1 cu. centimeter	0.061 cu. in.

Name.	No. liters.	Cubic measure.	Wine measure.
Kiloliter	1,000	1 cubic meter	264.17 gals.
Hectoliter	100	.1 cubic meter	26.417 gals.
Decaliter	10	10 cu. decimeters	2.6417 gals.
Liter	1	1 cu. decimeter	1.0567 quarts.
Deciliter	.1	.1 cu. decimeter	0.845 gill.
Centiliter	.01	10 cu. centimeters	0.388 fluid oz.
Milliliter	.001	1 cu. centimeter	0.27 fluid oz.

WEIGHTS.

Metric denominations and values.		Equivalents in denominations in use.
Name.	No. grams.	Weight of what quantity of water at max. density.
Millier or tonneau	1,000,000	1 cubic meter.
Quintal	100,000	1 hectolieter.
Myriagram	10,000	10 liters.
Kilogram or kilo	1,000	1 liter.
Hectogram	100	1 deciliter.
Dekagram	10	10 cubic centimeters.
Gram	1	1 cubic centimeter.
Decigram	.1	.1 cubic centimeter.
Centigram	.01	10 cubic millimeters.
Milligram	.001	1 cubic millimeter.

Name.	No. grams.	Avoirdupois weight.
Millier or tonneau	1,000,000	2,204.6 pounds.
Quintal	100,000	220.46 pounds.
Myriagram	10,000	22.046 pounds.
Kilogram or kilo	1,000	2.2046 pounds.
Hectogram	100	3.5274 ounces.
Dekagram	10	0.3527 ounce.
Gram	1	15.432 grains.
Decigram	.1	1.5432 grains.
Centigram	.01	0.1543 grain.
Milligram	.001	0.0154 grain.

THE METRIC SYSTEM—Continued.

WEIGHTS—continued.

Unit.	Equivalent value in other units.
1 h. p.=	746 watts. .746 k. w. 33,000 ft.-lbs. per minute. 550 ft.-lbs per second. 2,545 heat units per hour. 42.4 heat units per minute. .707 heat unit per second. .175 lb. carbon oxidized per hour. 2.64 lbs. water evaporated per hour from and at 212° F.
1 h. p. hour=	746 k. w. hours. 1,980,000 ft.-lbs. 2,545 heat units. 273,740 k. g. m. .175 lb. carbon oxidized with perfect efficiency. 2.64 lbs. water evaporated from and at 212° F. 17.0 lbs. water raised from 62° to 212° F.
1 kilowatt=	1,000 watts. 1.34 h. p. 2,654,200 ft.-lbs. per hour. 44,240 ft.-lbs. per minute. 737.3 ft.-lbs. per second. 3,412 heat units per hour. 56.9 heat units per minute. .948 heat unit per second. .2275 lb. carbon oxidized per hour. 3.53 lbs. water evaporated per hour from and at 212° F.
1 watt per sq. in.=	8.19 heat units per sq. ft. per minute. 6,371 ft.-lbs. per sq. ft. per minute. .193 h. p. per sq. ft.
1 kilogram meter=	7.233 ft.-lbs. .00000365 h. p. hour. .00000272 k. w. hour. .0093 heat units.
1 lb. water evaporated from and at 212° F.=	.283 k. w. hour. .379 h. p. hour. 965.7 heat units. 103,900 k. g. m. 1,019,000 joules. 751,300 ft.-lbs. .0664 lb. of carbon oxidized.
1 heat unit=	1,055 watt seconds. 778 ft.-lbs. 107.6 kilogram meters. .000293 k. w. hour. .000393 h. p. hour. .0000688 lb. carbon oxidized .001036 lb. water evaporated from and at 212° F.
1 heat unit per sq. ft. per min.=	.122 watts per sq. in. .0176 k. w. per sq. ft. .0236 h. p. per sq. ft.
1 watt=	1 joule per second. .00134 h. p. 3,412 heat units per hour. .7373 ft.-lb. per second. .0035 lb. water evaporated per hour. 44.24 ft.-lbs. per minute.
1 k. w. hour=	1,000 watt hours. 1.34 h. p. hours. 2,654,200 ft.-lbs. 3,600,000 joules. 3,412 heat units. 367,000 kilogram meters. .235 lb. carbon oxidized with perfect efficiency. 3.53 lbs. water evaporated from and at 212° F. 22.75 lbs. of water raised from 62° to 212° F.
1 joule=	1 watt second. .000000278 k. w. hour. .102 k. g. m. .0009477 heat units. .7373 ft.-lb.
1 ft.-lb.=	1.356 joules. .1383 k. g. m. .000000377 k. w. hours. .001285 heat units. .0000005 h. p. hour.
1 lb. carbon oxidized with perfect efficiency=	14.544 heat units. 1.11 lb. anthracite coal oxidized. 2.5 lbs. dry wood oxidized. 21 cubic ft. illuminating gas. 4.26 k. w. hours. 5.71 h. p. hours. 11,315,000 ft.-lbs. 15 lbs. of water evaporated from and at 212° F.

METRIC UNITS USED IN ELECTRICITY DEFINED IN A UNITED STATES CATALOGUE.

USEFUL DATA.

DEFINITIONS OF ELECTRICAL UNITS.

All electrical units are derived from the following mechanical units:

The centimeter is the unit of length, and equals .3937 inch, or .000000001 of a quadrant of the earth.

The gram is the unit of mass, and is equal to 15.432 grains, the mass of a cubic centimeter of water at 4° C.

The second is the unit of time and is the time of one swing of a pendulum, swinging 86464.09 times per day, or the 1-86400th part of a mean solar day.

The volt is the unit of electro-motive force (E).

Electro-motive force, which is the force that moves electricity, is usually written E. M. F. (in formulæ E) and various writers use it to express potential difference of potential, electric pressure, and electric force. One volt will force an ampere of current through one ohm of resistance. Its value is purely arbitrary, but fixed.

The ohm is the unit of resistance (R), and it is equal to the resistance of a column of pure mercury 1 square millimeter in section and 106 centimeters long at the temperature of melting ice. One ohm is that resistance through which one ampere of current will flow at a pressure of one volt of E. M. F.

The megohm=1,000,000 ohms.

The ampere is the unit of current strength (C). Its value may be defined as that quantity of electricity which flows through one ohm of resistance when impelled by one volt of E. M. F. One ampere of current flowing through a bath will deposit 0.017253 grain of silver or 0.005085 grain of copper per second.

The coulomb is the unit of quantity (Q), and is the quantity of electricity passing per second when the current is one ampere.

The farad is the unit of capacity (K), and is that capacity that will contain one coulomb at a potential of one volt. A condenser of one farad capacity, if charged to two volts, will contain two coulombs; if to 100 volts, 100 coulombs, etc.

The microfarad (mfd)=one-millionth of a farad.

The joule is the unit of work (W). It is the work done or heat generated by a watt in a second. It is equal to .7373 foot-pound.

The watt is the unit of electrical power (P), and is the energy contained in a current of one ampere with an electro-motive force of one volt. 746 watts=one horsepower. A current of 10 amperes and 74.6 volts will do the work of one horsepower.

A horsepower in a steam engine or other prime mover is 550 lbs. raised one foot per second, or 33,000 lbs. one foot per minute.

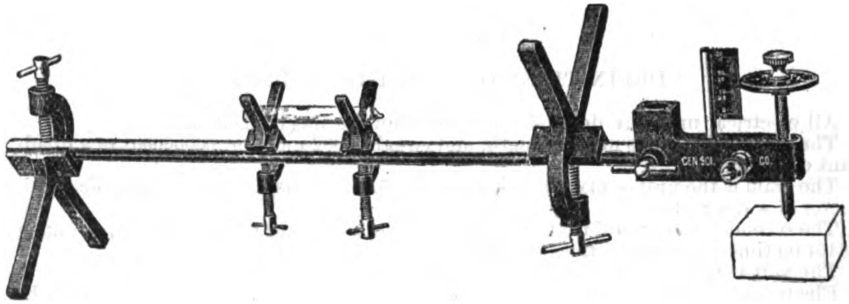
A kilowatt (kw) equals 1,000 watts. The E. M. F. is distributed according to the resistance of the various parts of the circuit, except where there is counter E. M. F.

Counter E. M. F. is like back pressure in hydraulics. Thus to find the available E. M. F., or the resulting current against a resistance where there is a counter E. M. F., the counter E. M. F. must be deducted. For example: Suppose a storage battery with a resistance of .02 ohm and a C. E. M. F. of 15 volts, and you wish to charge it with a dynamo which gives an E. M. F. of 20 volts at the battery binding posts. There are 20−15=5 volts working through a resistance of .02 of an ohm with consequently a current of 250 amperes. The fall of potential is, however, virtually 20 volts, and not 5 volts, and the power is 20×250=5000 watts, and not 5×250=1250 watts, as might perhaps be supposed. It is obvious that the C. E. M. F. has acted as a true resistance. In the above case 5×250=1250 watts were wasted in overcoming the resistance of the storage battery and the remaining 3750 watts were stored up in the chemical changes which they brought about in the active material of the storage battery.

Mils.=thousandths of an inch. d^2=circular mils.

The circular mil. is now generally used as the unit of area when considering the cross-section of electric conductors, the resistance being inversely and weight of copper directly proportional to the circular mils.

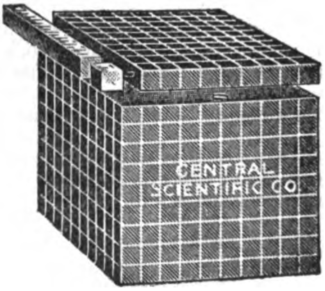
METRIC DEMONSTRATION MATERIAL FOR INSTRUCTION IN SCHOOLS AND COLLEGES.



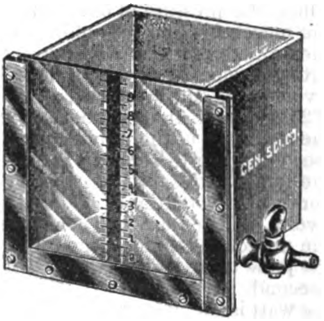
No. 280.

280. *Level tester*. Composed of 2 No. 26C V supports, 2 No. 26B V supports, 1 No. 21 40 cm. rod and 1 No. 338B micrometer screw. Complete, without level.. $7.50

280A. Level tester, page 488.



No. 281.



No. 285.

281. *Liter block*. An important adjunct in teaching density, as well as the metric system. The block is loaded and has a graduated face, showing 100 square centimeters on a side. It is dissectible to 1-10, 1-100, and 1-1000 of its volume, each piece being weighted to the specific gravity of water. (See also No. 285, liter case)........................ 2.75

283. *Liter block*, plain, neither loaded nor dissected........................... .65

285. *Liter case*, to be used in connection with No. 281 liter block. It is made of cast aluminum, one side being of glass with etched graduation in millimeters. This case is especially adapted for specific gravity work and measuring irregular solids. It is the counterpart of the liter block in hollow form. The glass face allows a full inspection of the contents, the stopcock which is attached permits of a nicer adjustment and measurement than is possible in common capacity measures, and the graduations indicate exact amounts. If this case is put on a balance and its weight exactly balanced, the addition of water shows an increase of 10 grams of water for every millimeter of scale division, which is equal to a centiliter or 10 c. c. of water. Any small solid, of however irregular shape, may be measured in this case and its specific gravity taken with a minimum of trouble.. 3.00

SHIPPING DATA GIVEN COMPLETE IN BOTH METRIC AND CUSTOMARY MEASURES.

Case lots, weights, and dimensions.

List No.	Customary.				Metric.		
	Case lots.	Gross approximate.	Net approximate.	Cases measure—	Gross approximate.	Net approximate.	Cases measure—
	Doz.	*Lbs.*	*Lbs.*	*Inches.*	*Kilos.*	*Kilos.*	*Centimeters.*
82	12	254	225	25 x 18½ x 14	116	102	64 x 47 x 36
92	12	270	237	" " "	123	108	" " "
32	12	238	192	27¾ x 17 x 13	108	87	71 x 44 x 33
72	12	255	204	" " "	116	93	" " "
612	12	220	180	" " "	100	82	" " "
812	4	105	78	18⅜ x 15½ x 10½	48	36	47 x 40 x 27
4778	12	240	215	27¾ x 17 x 13	109	98	71 x 44 x 33
4978	12	216	178	" " "	98	81	" " "
378	20	228	180	25 x 18½ x 14	104	82	64 x 47 x 36
3749	12	210	170	27¾ x 17 x 13	95	77	71 x 44 x 33
170	20	245	200	30¾ x 20½ x 14	111	91	78 x 53 x 36
64	20	212	170	23¼ x 18¾ x 12¼	96	76	59 x 47 x 31
217	12	210	105	16½ x 14 x 14	66	48	....
50	25	62	50	13½ x 12¾ x 11⅜	28	23	35 x 33 x 29
52	25	64	52	" " "	29	24	" " "
60	25	110	92	18⅜ x 15½ x 10½	50	42	47 x 40 x 27
62	25	120	100	" " "	55	46	" " "
01	25	95	75	10 x 10½ x 11	43	34	26 x 27 x 28
07	25	102	82	13½ x 12¾ x 11⅜	46	37	35 x 33 x 29
1	12	87	72	13¼ x 10¼ x 11¼	40	33	34 x 26 x 29
10	12	115	87	18⅝ x 13¼ x 10⅝	52	40	48 x 34 x 27
⅜	12	87	72	13¼ x 10¼ x 11¼	40	33	34 x 26 x 29
7	12	97	81	13½ x 12¾ x 11⅜	44	37	35 x 33 x 29
9	12	118	94	18⅝ x 13¼ x 10⅝	54	43	48 x 34 x 27
5440	25	110	92	18⅝ x 13¼ x 10⅝	50	42	" " "
5441	25	105	85	" " "	48	39	" " "
99	25	104	75	22½ x 12¾ x 11	47	34	58 x 33 x 28
999	25	185	150	22½ x 12¾ x 12½	84	68	58 x 33 x 32
76	50	185	146	25½ x 16¼ x 9	84	66	65 x 42 x 23
77	50	193	148	" " "	88	67	" " "
1398	50	65	50	13¼ x 10¼ x 11¼	30	23	34 x 26 x 29
1400	50	67	52	" " "	31	24	" " "
030	50	95	75	18⅝ x 13¼ x 10⅝	43	34	48 x 34 x 27
44	50	145	125	22½ x 14 x 9¾	66	57	58 x 36 x 25
45	50	150	132	" " "	68	60	" " "
96	50	186	146	25½ x 16¼ x 9	85	66	65 x 42 x 23
97	50	193	148	" " "	88	67	" " "
222 & 221	25	114	97	18⅜ x 15½x 10½	52	44	47 x 40 x 27
215 & 214	25	65	47	13¼ x 10¼ x 11¼	30	21	34 x 26 x 29
105	50	185	146	25½ x 16¼ x 9	84	66	65 x 42 x 23
110	50	270	236	23 x 16¼ x 13	114	107	59 x 42 x 33
16	50	62	50	13¼ x 10¼ x 11¼	28	23	34 x 26 x 29
18	50	87	63	22½ x 14 x 9¾	40	29	58 x 36 x 25
19	50	135	113	22½ x 14 x 9¾	61	51	58 x 36 x 25
21	50	170	135	26¼ x 16½ x 10⅝	76	61	67 x 42 x 27
22	50	282	236	25 x 18½ x 12½	128	107	64 x 47 x 32

METRIC EQUIVALENTS SHOWN IN A CATALOGUE.

Table of decimal equivalents of millimeters and fractions of millimeters.

$\frac{1}{100}$ mm.=.0003937 inch.

Mm.	inches.	Mm.	inches.	Mm.	inches.
$\frac{1}{50}$=	.00079	$\frac{26}{50}$=	.02047	2=	.07874
$\frac{2}{50}$=	.00157	$\frac{27}{50}$=	.02126	3=	.11811
$\frac{3}{50}$=	.00236	$\frac{28}{50}$=	.02205	4=	.15748
$\frac{4}{50}$=	.00315	$\frac{29}{50}$=	.02283	5=	.19685
$\frac{5}{50}$=	.00394	$\frac{30}{50}$=	.02362	6=	.23622
$\frac{6}{50}$=	.00472	$\frac{31}{50}$=	.02441	7=	.27559
$\frac{7}{50}$=	.00551	$\frac{32}{50}$=	.02520	8=	.31496
$\frac{8}{50}$=	.00630	$\frac{33}{50}$=	.02598	9=	.35433
$\frac{9}{50}$=	.00709	$\frac{34}{50}$=	.02677	10=	.39370
$\frac{10}{50}$=	.00787	$\frac{35}{50}$=	.02756	11=	.43307
$\frac{11}{50}$=	.00866	$\frac{36}{50}$=	.02835	12=	.47244
$\frac{12}{50}$=	.00945	$\frac{37}{50}$=	.02913	13=	.51181
$\frac{13}{50}$=	.01024	$\frac{38}{50}$=	.02992	14=	.55118
$\frac{14}{50}$=	.01102	$\frac{39}{50}$=	.03071	15=	.59055
$\frac{15}{50}$=	.01181	$\frac{40}{50}$=	.03150	16=	.62992
$\frac{16}{50}$=	.01260	$\frac{41}{50}$=	.03228	17=	.66929
$\frac{17}{50}$=	.01339	$\frac{42}{50}$=	.03307	18=	.70866
$\frac{18}{50}$=	.01417	$\frac{43}{50}$=	.03386	19=	.74803
$\frac{19}{50}$=	.01496	$\frac{44}{50}$=	.03465	20=	.78740
$\frac{20}{50}$=	.01575	$\frac{45}{50}$=	.03543	21=	.82677
$\frac{21}{50}$=	.01654	$\frac{46}{50}$=	.03622	22=	.86614
$\frac{22}{50}$=	.01732	$\frac{47}{50}$=	.03701	23=	.90551
$\frac{23}{50}$=	.01811	$\frac{48}{50}$=	.03780	24=	.94488
$\frac{24}{50}$=	.01890	$\frac{49}{50}$=	.03858	25=	.98425
$\frac{25}{50}$=	.01969	1=	.03937	26=	1.06362

10 mm.=1 centimeter= 0.3937 inches.
10 cm. =1 decimeter = 3.937 "
10 dm. =1 meter =39.37 "
25.4 mm.=1 English inch.

SAMPLE PAGE FROM UNITED STATES TOOL CATALOGUE, SHOWING TRANSLATION TABLES TO FACILITATE USE OF METRIC SYSTEM.

Values of fractional sizes expressed in millimeters.

Fractional sizes.		1 inch.	2 inch.	3 inch.	4 inch.	5 inch.	6 inch.
		25.4	50.8	76.2	101.6	127.	152.4
1/64	0.40	25.80	51.20	76.60	102.	127.39	152.79
1/32	0.79	26.19	51.59	76.99	102.39	127.79	153.19
3/64	1.19	26.59	51.99	77.39	102.79	128.19	153.59
1/16	1.59	26.99	52.39	77.79	103.19	128.59	153.98
5/64	1.98	27.38	52.78	78.18	103.58	128.98	154.38
3/32	2.38	27.78	53.18	78.58	103.98	129.38	154.78
7/64	2.77	28.17	53.58	78.98	104.37	129.78	155.18
1/8	3.17	28.57	53.97	79.37	104.77	130.17	155.57
9/64	3.57	28.97	54.37	79.77	105.17	130.57	155.97
5/32	3.97	29.37	54.77	80.17	105.57	130.97	156.37
11/64	4.37	29.76	55.16	80.56	105.96	131.36	156.76
3/16	4.76	30.16	55.56	80.96	106.36	131.76	157.16
13/64	5.16	30.56	55.96	81.36	106.76	132.16	157.56
7/32	5.56	30.96	56.36	81.75	107.16	132.55	157.95
15/64	5.95	31.35	56.75	82.15	107.55	132.95	158.35
1/4	6.35	31.75	57.15	82.55	107.95	133.35	158.75
17/64	6.75	32.15	57.55	82.95	108.34	133.74	159.14
9/32	7.14	32.54	57.94	83.34	108.74	134.14	159.54
19/64	7.54	32.94	58.34	83.74	109.14	134.54	159.94
5/16	7.94	33.34	58.74	84.14	109.54	134.94	160.33
21/64	8.33	33.73	59.13	84.53	109.93	135.33	160.73
11/32	8.73	34.13	59.53	84.93	110.33	135.73	161.13
23/64	9.13	34.53	59.93	85.33	110.73	136.13	161.53
3/8	9.52	34.92	60.32	85.72	111.12	136.52	161.92
25/64	9.92	35.32	60.72	86.12	111.52	136.92	162.32
13/32	10.32	35.72	61.12	86.52	111.92	137.32	162.72
27/64	10.72	36.11	61.51	86.91	112.31	137.71	163.11
7/16	11.11	36.51	61.91	87.31	112.71	138.11	163.51
29/64	11.51	36.91	62.31	87.71	113.11	138.51	163.91
15/32	11.91	37.31	62.71	88.1	113.5	138.9	164.3
31/64	12.3	37.7	63.1	88.5	113.9	139.3	164.7
1/2	12.7	38.1	63.5	88.9	114.3	139.7	165.1
33/64	13.10	38.49	63.90	89.3	114.69	140.09	165.49
17/32	13.49	38.89	64.29	89.69	115.09	140.49	165.89
35/64	13.89	39.29	64.69	90.09	115.49	140.89	166.29
9/16	14.29	39.69	65.09	90.49	115.89	141.29	166.68
37/64	14.68	40.08	65.48	90.88	116.28	141.68	167.08
19/32	15.08	40.48	65.88	91.28	116.68	142.08	167.48
39/64	15.48	40.88	66.28	91.68	117.08	142.48	167.88
5/8	15.87	41.27	66.67	92.07	117.47	142.87	168.27
41/64	16.27	41.67	67.07	92.47	117.87	143.27	168.67
21/32	16.67	42.07	67.47	92.87	118.27	143.67	169.07
43/64	17.07	42.46	67.86	93.26	118.66	144.06	169.46
11/16	17.46	42.86	68.26	93.66	119.06	144.46	169.86
45/64	17.86	43.26	68.66	94.06	119.46	144.86	170.26
23/32	18.26	43.66	69.06	94.45	119.85	145.25	170.65
47/64	18.65	44.05	69.45	94.85	120.25	145.65	171.05
3/4	19.05	44.45	69.85	95.25	120.65	146.05	171.45
49/64	19.45	44.85	70.25	95.65	121.04	146.44	171.84
25/32	19.84	45.24	70.64	96.04	121.44	146.84	172.24
51/64	20.24	45.64	71.04	96.44	121.84	147.24	172.64
13/16	20.64	46.04	71.44	96.84	122.24	147.63	173.03
53/64	21.03	46.43	71.83	97.23	122.63	148.03	173.43
27/32	21.43	46.83	72.23	97.63	123.03	148.43	173.83
55/64	21.83	47.23	72.63	98.03	123.43	148.83	174.22
7/8	22.22	47.62	73.02	98.42	123.82	149.22	174.62
57/64	22.62	48.02	73.42	98.82	124.22	149.62	175.02
29/32	23.02	48.42	73.82	99.22	124.62	150.02	175.42
59/64	23.42	48.81	74.21	99.61	125.01	150.41	175.81
15/16	23.81	49.21	74.61	100.01	125.41	150.81	176.21
61/64	24.21	49.61	75.01	100.41	125.81	151.21	176.61
31/32	24.61	50.01	75.4	100.8	126.2	151.6	177.
63/64	25.	50.4	75.8	101.2	126.6	152.	177.4

1 millimeter=.03937 inch.

DRILL-GAUGE TABLES SHOWING COMBINED METRIC AND INCH SIZES.

[From a manufacturer's catalogue.]

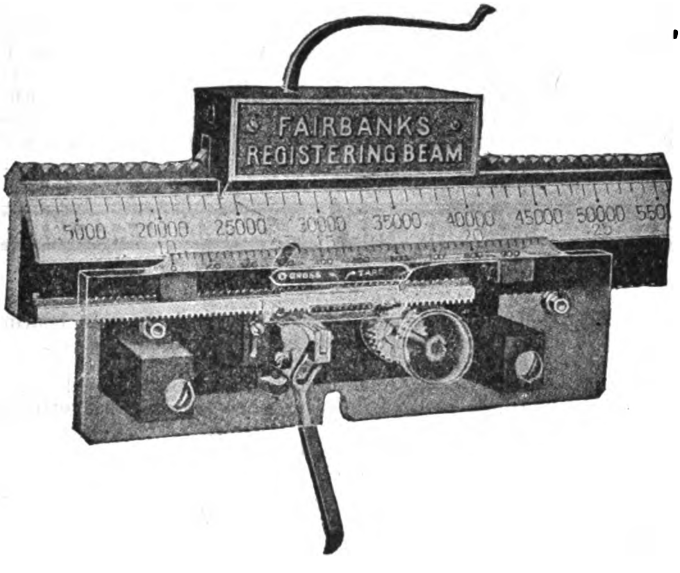
Note the sequence from small to large.

Table of decimal equivalents for millimeter, drill gauge and fractional sizes.

Drill.	Equivalent.	Drill.	Equivalent.	Drill.	Equivalent.	Drill.	Equivalent.
K	.28100	20½mm	.80709	1 15/32	1.46870	55 mm	2.16535
9/32	.28120	13/16	.81250	37½mm	1.47638	2 11/64	2.17180
L	.29000	21 mm	.82677	1 31/64	1.48430	2 3/16	2.18750
M	.29500	53/64	.82810	38 mm	1.49606	2 13/64	2.20310
7½mm	.29528	27/32	.84370	1 1/2	1.50000	56 mm	2.20472
19/64	.29680	21½mm	.84646	1 33/64	1.51560	2 7/32	2.21870
N	.30200	55/64	.85930	38½mm	1.51575	2 15/64	2.23430
5/16	.31250	22 mm	.86614	1 17/32	1.53120	57 mm	2.24409
8 mm	.31496	7/8	.87500	39 mm	1.53543	2 1/4	2.25000
O	.31600	22½mm	.88583	1 35/64	1.54680	2 17/64	2.26560
P	.32300	57/64	.89060	39½mm	1.55512	2 9/32	2.28120
21/64	.32810	23 mm	.90551	1 9/16	1.56250	58 mm	2.28346
Q	.33200	29/32	.90620	40 mm	1.57480	2 19/64	2.29680
8½mm	.33465	59/64	.92180	1 37/64	1.57810	2 5/16	2.31250
R	.33900	23½mm	.92520	1 19/32	1.59370	59 mm	2.32283
11/32	.34370	15/16	.93750	40½mm	1.59449	2 21/64	2.32810
S	.34800	24 mm	.94488	1 39/64	1.60930	2 11/32	2.34370
9 mm	.35433	61/64	.95310	41 mm	1.61417	2 23/64	2.35930
T	.35800	24½mm	.96457	1 5/8	1.62500	60 mm	2.36220
23/64	.35930	31/32	.96870	41½mm	1.63386	2 3/8	2.37500
U	.36800	25 mm	.98425	1 41/64	1.64060	2 25/64	2.39060
9½mm	.37402	63/64	.98430	42 mm	1.65354	61 mm	2.40157
3/8	.37500	1	1.00000	1 21/32	1.65620	2 13/32	2.40620
V	.37700	25½mm	1.00394	1 43/64	1.67180	2 27/64	2.42180
W	.38600	1 1/64	1.01560	42½mm	1.67323	2 7/16	2.43750
25/64	.39060	26 mm	1.02362	1 11/16	1.68750	62 mm	2.44094
10 mm	.39370	1 1/32	1.03112	43 mm	1.69291	2 29/64	2.45310
X	39700	26½mm	1.04331	1 45/64	1.70310	2 15/32	2.46870
Y	.40400	1 3/64	1.04680	43½mm	1.71260	63 mm	2.48031
13/32	.40620	1 1/16	1.06250	1 23/32	1.71870	2 31/64	2.48430
Z	.41300	27 mm	1.06299	44 mm	1.73228	2 1/2	2.50000
10½mm	.41339	1 5/64	1.07810	1 47/64	1.73430	2 33/64	2.51560
27/64	.42180	27½mm	1.08268	1 3/4	1.75000	64 mm	2.51968
11 mm	.43307	1 3/32	1.09370	44½mm	1.75197	2 17/32	2.53120
7/16	.43750	28 mm	1.10236	1 49/64	1.76560	2 35/64	2.54680
11½mm	.45276	1 7/64	1.10930	45 mm	1.77165	65 mm	2.55905
29/64	.45310	28½mm	1.12205	1 25/32	1.78120	2 9/16	2.56250
15/32	.46870	1 1/8	1.12500	45½mm	1.79134	2 37/64	2.57810
12 mm	.47244	1 9/64	1.14060	1 51/64	1.79680	2 19/32	2.59370
31/64	.48430	29 mm	1.14173	46 mm	1.81102	66 mm	2.59842
12½mm	.49213	1 5/32	1.15620	1 13/16	1.81250	2 39/64	2.60930
1/2	.50000	29½mm	1.16142	1 53/64	1.82810	2 5/8	2.62500
13 mm	.51181	1 11/64	1.17180	46½mm	1.83072	67 mm	2.63779
33/64	.51560	30 mm	1.18110	1 27/32	1.84370	2 41/64	2.64060
17/32	.53120	1 3/16	1.18750	47 mm	1.85039	2 21/32	2.65620
13½mm	.53150	30½mm	1.20079	1 55/64	1.85930	2 43/64	2.67180
35/64	.54680	1 13/64	1.20310	47½mm	1.87008	68 mm	2.67716
14 mm	.55118	1 7/32	1.21870	1 7/8	1.87500	2 11/16	2.68750
9/16	.56250	31 mm	1.22047	48 mm	1.88976	2 45/64	2.70310
14½mm	.57087	1 15/64	1.23430	1 57/64	1.89060	69 mm	2.71653
37/64	.57810	31½mm	1.24016	1 29/32	1.90620	2 23/32	2.71870
15 mm	.59055	1 1/4	1.25000	48½mm	1.90945	2 47/64	2.73430
19/32	.59370	32 mm	1.25984	1 59/64	1.92180	2 3/4	2.75000
39/64	.60930	1 17/64	1.26560	49 mm	1.92913	70 mm	2.75590
15½mm	.61024	32½mm	1.27953	1 15/16	1.93750	2 49/64	2.76560
5/8	.62500	1 9/32	1.28120	49½mm	1.94882	2 25/32	2.78120
16 mm	.62992	1 19/64	1.29680	1 61/64	1.95310	71 mm	2.79527
41/64	.64060	33 mm	1.29921	50 mm	1.96850	2 51/64	2.79680
16½mm	.64961	1 5/16	1.31250	1 31/32	1.96870	2 13/16	2.81250
21/32	.65620	33½mm	1.31890	1 63/64	1.98430	2 53/64	2.82810
17 mm	.66929	1 21/64	1.32810	50½mm	1.98819	72 mm	2.83464
43/64	.67180	34 mm	1.33858	2	2.00000	2 27/32	2.84370
11/16	.68750	1 11/32	1.34370	51 mm	2.00787	2 55/64	2.85930
17½mm	.68898	34½mm	1.35827	2 1/64	2.01560	73 mm	2.87401
45/64	.70310	1 23/64	1.35930	2 1/32	2.03120	2 7/8	2.87500
18 mm	.70866	1 3/8	1.37500	2 3/64	2.04680	2 57/64	2.89060
23/32	.71870	35 mm	1.37795	52 mm	2.04724	2 29/32	2.90620
18½mm	.72835	1 25/64	1.39060	2 1/16	2.06250	74 mm	2.91338
47/64	.73430	35½mm	1.39764	2 5/64	2.07810	2 59/64	2.92180
19 mm	.74803	1 13/32	1.40620	53 mm	2.08661	2 15/16	2.93750
3/4	.75000	36 mm	1.41732	2 3/32	2.09370	75 mm	2.95275
49/64	.76560	1 27/64	1.42180	2 7/64	2.10930	2 61/64	2.95310
19½mm	.76772	36½mm	1.43701	2 1/8	2.12500	2 31/32	2.96870
25/32	.78120	1 7/16	1.43750	54 mm	2.12598	2 63/64	2.98430
20 mm	.78740	1 29/64	1.45310	2 9/64	2.14060	76 mm	2.99212
51/64	.79680	37 mm	1.45669	2 5/32	2.15620	3	3.00000

EXAMPLE OF REGISTERING BEAM OF A TRACK SCALE FOR WEIGHING CARS, ANNOUNCING ADAPTABILITY TO METRIC WEIGHINGS.

TYPE REGISTERING BEAMS.



REGISTERING MECHANISM.

The above "phantom" half tone illustrates the internal mechanism of the poise of our type registering beam. This mechanism is simple, strong, and durable, and is easily adjusted to give any desired pressure upon the ticket.

Our type registering beams can be adapted to the English system of tons, cwts., quarters, and pounds; also to the metric and Russian standards.

METRIC RULES.

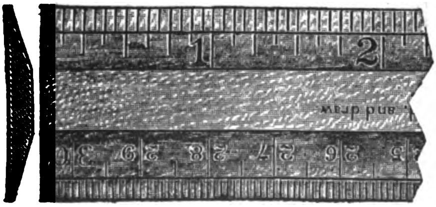
[Note varied equipment of metric rules available.]

[From a Chicago catalogue.]

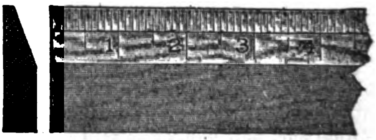
316.	*Standard meter scale.* See Catalog K for description........duty free..	$50.00
316A.	*Standard meter scale.* See Catalog K for description........duty free..	77.50
316B.	*Standard meter scale.* See Catalog K for description........duty free..	87.50
317.	*Meter stick* (school meter), of maple, 2 cm. square. One surface is plain and shows the length of the simple meter; the second face is graduated in tenths of meters, or decimeters; the third face is graduated in hundredths of meters, or centimeters; and the fourth face is graduated in thousandths of meters, or millimeters. The last named face gives divisions also in decimeters and centimeters. This piece is valuable in teaching students the metric system of lengths..	.75
318.	*Meter stick*, of boxwood. A high-grade stick graduated in millimeters..	.55
318A.	*Meter stick*, of boxwood. Same as No. 318, but graduated in millimeters and inches..	.67

No. 319.

319.	*Meter stick*, of maple. One side is graduated in decimeters, centimeters, and millimeters; the other side in inches and eighths...........	.28
321.	*Meter stick*, same as No. 319, but ends tipped with brass..............	.35
322.	*Meter stick*, same as No. 321, but two meters long, brass tipped.........	1.35
323.	*Meter scale*, of paper, graduated in millimeters. For use vertically; zero at the top. Each.................. .07 Per dozen......................	.60
323A.	*Meter scale*, same as No. 323, but with zero at the bottom. Each.................. .07 Per dozen......................	.60



No. 325.



No. 327.

325.	*Metric rule*, of maple, 12 inches long. Graduated on one edge in millimeters and on the other in 16ths of inches. Double bevel with protractor on back. Each.................. .04 Per dozen......................	.40
326.	*Metric rule*, of white celluloid, 6 inches long. One edge graduated in mm., other edge in eighths of inches. May easily be carried in vest pocket. Each.................. .05 Per 100........................	4.50

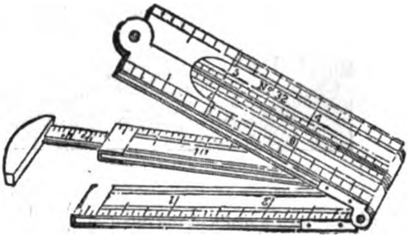
327. *Metric rule*, of boxwood, 12 inches long. One edge beveled and accurately graduated in millimeters, the other side of ruler graduated in 16ths of inches.
Each.................. .08 Per dozen........................ .90

328. *Metric rule*, on heavy bond paper, 3.5 x 23.5 cm., graduated for 20 cm. along one edge in mm. divisions.
Per dozen............... .10 Per 100......................... .75

319A and 321A. *Half meter sticks*, page 489.

329. *Metric measure*, boxwood, graduated in millimeters on one side and 16ths of inches on the other. Four fold, solid brass joints, with brass caliper extension for measuring diameters up to 2¾ inches or 70 mm. Made to carry in the pocket....... .50

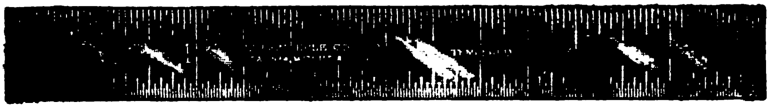
For other rules, see page 44.



No. 329.

NOTE FULL-LINE METRIC MEASURING RULES, SHOWING SAME PRICES FOR SIMILAR SIZES IN THE TWO SYSTEMS.

MACHINE DIVIDED STEEL RULES.



FLEXIBLE.

These rules are made of the finest quality spring tempered steel, very thin and flexible. From 1 to 12 inches they are ½ inch wide, and will easily conform to a 2-inch circle. Rules from 18 to 36 inches are ¾ inch wide and a trifle heavier. Graduated one side only.

No. 2110—Flexible, No. 10 graduations, 32nds and 64ths.
No. 2111— " " 11 " 64ths and 100ths.
No. 2112— " " 12 " 50ths and 100ths.

Prices of flexible steel rules.

Nos. 2110, 2111, 2112.

Lengths	3 in.	4 in.	6 in.	9 in.	12 in.	18 in.	24 in.	36 in.
Wt. per doz	2 oz.	3 oz.	4 oz.	7 oz.	8 oz.	1½ lbs.	2¼ lbs.	3 lbs.
Price per doz	$4.20	5.40	7.80	12.00	15.00	24.00	30.00	60.00

NARROW.

Approximate thickness, 1-20 inch.

5/16 inch wide, spring tempered, graduated one edge of each side.
No. 2310—No. 10 graduations, 32nds and 64ths.
No. 2311— " 11 " 64ths and 100ths.
No. 2312— " 12 " 50ths and 100ths.

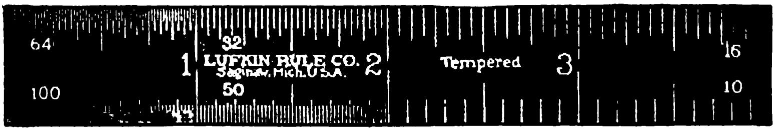
Prices of narrow steel rules.

Nos. 2310, 2311, 2312.

Lengths	4 in.	6 in.	9 in.	12 in.
Wt. per doz	3 oz.	4 oz.	6 oz.	10 oz.
Price per doz	$5.40	7.80	12.80	13.00

METRIC AND ENGLISH—TEMPERED.

Approximate thickness, 1-20 inch.



No. 3227—Marked one side, upper edge, millimeters; lower edge, half millimeters. Other side, upper edge, 16ths, 32nds, and 64ths inches; lower edge, 10ths, 20ths, 50ths, and 100ths inches.

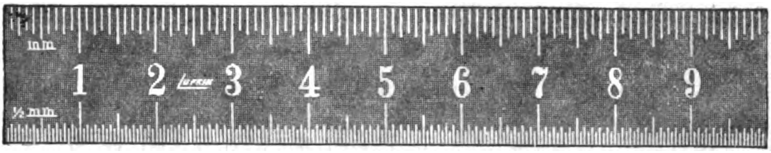
Approximate width, inches	½	½	½	⅝	¾	⅞	1	1¼	1¼	1¼	1¼
Length, inches	1	2	3	4	6	9	12	18	24	36	48
Wt. per doz	2 oz.	3 oz.	4 oz.	7 oz.	13 oz.	1½ lbs.	2 lbs.	4½ lbs.	6 lbs.	9 lbs.	12 lbs.
Price per doz	$1.80	3.00	4.20	5.40	7.80	12.00	15.00	24.00	30.00	60.00	84.00

Packed one-half dozen in a box.

MACHINE DIVIDED STEEL RULES.

METRIC GRADUATIONS—TEMPERED.

Approximate thickness, 1 mm.



No. 2200 M—Marked both sides, three edges in millimeters, one edge in ½ millimeters.

Approximate width, mm..........	13	13	19	25	32	32	32
Lengths............................	5 cm.	10 cm.	20 cm.	30 cm.	40 cm.	50 cm.	1 m.
Wt. per doz........................	3 oz.	7 oz.	1½ lbs.	2 lbs.	3½ lbs.	5 lbs.	10 lbs.
Price per doz......................	$3.00	5.40	10.20	15.00	19.80	24.00	84.00

HALF FLEXIBLE.

Approximate thickness, ½ mm.

These rules are made of finest quality spring tempered steel. They are the same widths as the regular tempered rules and about one-half the thickness, but heavier than the flexible rules.

No. 2600 M—Marked both sides, three edges in millimeters, one edge in ½ millimeters.

Lengths..	5 cm.	10 cm.	20 cm.	30 cm.
Wt. per doz..	3 oz.	5 oz.	9 oz.	17 oz.
Price per doz..	$3.00	5.40	10.20	15.00

FLEXIBLE.

These rules are made of the finest quality spring-tempered steel, very thin and flexible. Rules from 5 cm. to 30 cm. are approximately 12 mm. wide; rules from 40 cm. to 1 m. are approximately 19 mm. wide, and a trifle heavier.

No. 2100 M—Marked one side only, upper edge millimeters, lower edge ½ millimeters.

Lengths	5 cm.	10 cm.	20 cm.	30 cm.	40 cm.	50 cm.	1 m.
Wt. per doz........................	2 oz.	3 oz.	6 oz.	8 oz.	1½ lbs.	2 lbs.	3½ lbs.
Price per doz	$3.00	5.40	10.20	15.00	19.80	24.00	84.00

NARROW.

Approximate thickness, 1 mm.

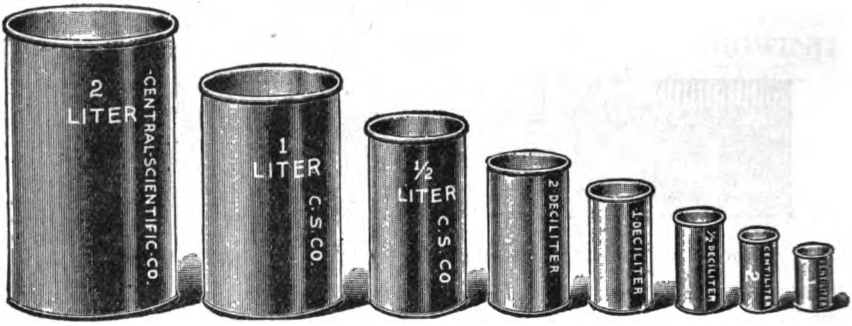
No. 2300—Approximately 5 mm. wide, spring tempered, graduated one edge of one side in millimeters, one edge of other side in ½ millimeters.

Lengths..	10 cm.	20 cm.	30 cm.
Wt. per doz..	3 oz.	6 oz.	10 oz.
Price per doz..	$5.40	10.20	15.00

Packed one-half dozen in a box.

METRIC MEASURES AND MATERIALS.

[Sample page from a Chicago catalogue.]

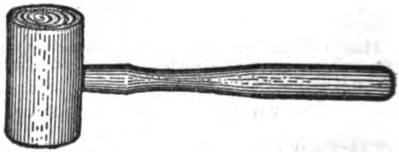


No. 291. No. 289. No. 295.

289.	*Liter measure*, polished brass, standard form, one liter piece only	$0.50
291.	*Liter measure*, polished brass, standard form, two liter piece only	.55
293.	*Liter measures*, brass, outer measure polished, standard form, one liter to one centiliter, 7 pieces	1.80
295.	*Liter measures*, brass, outer measure polished, standard form, two liter to one centiliter, 8 pieces	2.35

NOTE.—"Standard form" is that in which the diameter equals half the height.

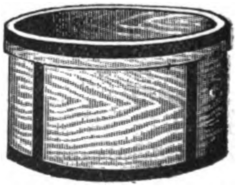
No. 303.



No. 304.

303.	*Mallet*, round, wood; 3-inch face	.22
304.	*Mallet*, rawhide; 5 oz	.70

No. 305.



No. 306.

305.	*Measures, liquid*, of tin, 1 gallon to ½ pint, 5 pieces	1.00
306.	*Measures, dry*, of wood, iron bound, ½ bushel to 1 quart, 5 pieces	1.50
307.	*Measuring microscope.* See Catalog K for description … net	10.00
309.	*Measuring microscope.* See Catalog K for description … net	25.00
310.	*Microscope support.* See Catalog K for description … net	6.75
311.	*Vernier microscope.* See Catalog K for description … duty free	32.50
312.	*Cathetometer.* See Catalog K for description … duty free	55.00
313.	*Cathetometer.* See Catalog K for description … duty free	117.50
	For Wilson Cathetometers, see Catalog K.	
314.	*Measuring disc*, of brass, as used in "Millikan and Gale" Experiment 1, for the determination of . Diameter, 7.5 cm	.11
314A.	*Measuring disc.* Diameter, 12.5 cm. Of heavy brass, accurately turned and finely finished	.67
1590A.	*Measuring cup*, as used in "Millikan and Gale" Experiment 2, for the determination of volume. See page 128	.40
315.	*Metric chart.* Excellent for comparison of English and metric systems of weights and measures. Mounted on cloth with roller	2.00

NOTE THAT TAPES MARKED IN METRIC MEASURE ARE SAME PRICE AS THOSE MARKED IN FEET AND INCHES.

[From a catalogue of rule and tape manufacturers.]

"RIVAL JUNIOR" STEEL MEASURING TAPES.

NICKEL PLATED STEEL CASES, FLUSH FOLDING HANDLE.

With one-quarter inch tapes.

Marked feet and 12ths (inches and sixteenths).	Marked feet, 10th and 100ths of feet, for surveyor's use.	Length.	Diameter of case.	Per dozen.
No. 1240	No. 1240 D	25 ft.	2¼ in.	$30.00
" 1241	" 1241 D	33 "	2¼ "	33.00
" 1243	" 1243 D	50 "	2½ "	36.00
" 1244	" 1244 D	66 "	3 "	42.00
" 1245	" 1245 D	75 "	3¼ "	48.00
" 1246	" 1246 D	100 "	3⅝ "	60.00

Tapes marked metric measure, one side only, at same price.

Tapes marked feet one side, metric measure on the other, add 2 cents per foot to list price.

Tapes marked feet and 12ths one side, feet and 10ths on the other, add 2 cents per foot to list price.

The "Rival Junior" is designed to meet the demand for a light serviceable tape at a moderate price. It is made on the same general lines as our well known "Rival," but is not much over half its size and weight. The 25 ft. weighs but 3½ ounces; 50 ft., 5½ ounces complete, and other sizes in proportion.

Durability has not, however, been sacrificed in obtaining the above noteworthy features, as the tapes are constructed in such a manner that with proper care they will last as long as any ordinary steel tape. In workmanship they present an elegant and finished appearance.

Accuracy guaranteed.

Prices on "Rival Junior" tapes only, without cases, same as "Reliable Junior" at bottom of page 5.

NOTE CATALOGUE QUOTES SAME PRICES FOR METRIC AS FOR CUSTOMARY MEASURING TAPES.

"RIVAL" STEEL MEASURING TAPES.

[Trade-mark registered.]

NICKEL PLATED STEEL CASES, FLUSH HANDLE, MARKED ONE SIDE ONLY IN TENTHS OR TWELFTHS.

With three-eighth inch tapes.

Marked feet and 12ths (inches and eighths).	Marked feet, 10ths and 100ths of feet, for surveyor's use.	Length.	Diameter of case.	Per dozen.
No. 240	No. 240 D	25 ft.	2⅜ in.	$33.00
" 241	" 241 D	33 "	2¾ "	36.00
" 243	" 243 D	50 "	3¼ "	40.80
" 244	" 244 D	66 "	3⅝ "	51.00
" 245	" 245 D	75 "	3¾ "	54.00
" 246	" 246 D	100 "	4¼ "	69.00

Marked feet one side, metric measure other side, add 2 cents per foot to list price.

MARKED IN METERS AND CENTIMETERS.

One side only. Millimeters the first 10 centimeters.

No.	241 M	243 M	244 M	245 M	246 M
Length, meters	10	15	20	25	30
Price per dozen	$36.00	$40.80	$54.00	$61.20	$69.00

Packed one-half dozen in a box.

Prices on "Rival" tapes only, without cases, same as "Challenge" at bottom of page 7.

METRIC SIZES (WITH INCH EQUIVALENTS) GIVEN FOR METRIC WIRE GAUGES.

[Note comparison with other gauges.]

Comparison of gauges, showing gauge number and equivalent in decimals.

No. of gauge.	Am. S. & W. Co. or W. & M. gauge.	Brown & Sharpe.	Birmingham or Stubs. (Iron gauge.)	British Imperial or new legal standard adopted March 1, 1884.	London gauge.	Paris gauge.		Music wire gauge Am. S. & W. Co. or W. & M.	No. of gauge.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Millimeters.*	*Inches.*	
8-0	.....	.....	.....	.....	.....	....	....	.0083	8-0
7-0	.490	.....	.....	.5000	.....	....	....	.0087	7-0
6-0	.4615	.5800	.....	.4640	.....	....	....	.0095	6-0
5-0	.4305	.5165	.5000	.4320	.....	....	....	.0100	5-0
4-0	.3938	.4600	.4540	.4000	.4540	....	....	.0110	4-0
3-0	.3625	.4096	.4250	.3720	.4250	....	....	.0120	3-0
2-0	.3310	.3648	.3800	.3480	.3800	....	....	.0133	2-0
0	.3065	.3250	.3400	.3240	.3400	....	....	.0144	0
P	.....	.....	.....	.....	.....	.019	.50	.....	P
1	.2830	.2893	.3000	.3000	.3000	.023	.60	.0156	1
2	.2625	.2576	.2840	.2760	.2840	.027	.70	.0166	2
3	.2437	.2294	.2590	.2520	.2590	.031	.80	.0178	3
4	.2253	.2043	.2380	.2320	.2380	.035	.90	.0188	4
5	.2070	.1819	.2200	.2120	.2200	.039	1.00	.0202	5
6	.1920	.1620	.2030	.1920	.2030	.043	1.10	.0215	6
7	.1770	.1443	.1800	.1760	.1800	.047	1.20	.0230	7
8	.1620	.1285	.1650	.1600	.1650	.051	1.30	.0243	8
9	.1483	.1144	.1480	.1440	.1480	.055	1.40	.0256	9
10	.1350	.1019	.1340	.1280	.1340	.059	1.50	.0270	10
11	.1205	.0907	.1200	.1160	.1200	.063	1.60	.0284	11
12	.1055	.0808	.1090	.1040	.1090	.071	1.80	.0296	12
13	.0915	.0720	.0950	.0920	.0950	.078	2.00	.0314	13
14	.0800	.0641	.0830	.0800	.0830	.087	2.20	.0326	14
15	.0720	.0571	.0720	.0720	.0720	.095	2.40	.0345	15
16	.0625	.0508	.0650	.0640	.0650	.106	2.70	.0360	16
17	.0540	.0453	.0580	.0560	.0580	.118	3.00	.0377	17
18	.0475	.0403	.0490	.0480	.0490	.134	3.40	.0395	18
19	.0410	.0359	.0420	.0400	.0400	.154	3.90	.0414	19
20	.0348	.0320	.0350	.0360	.0350	.173	4.40	.0434	20
21	.0317	.0285	.0320	.0320	.0315	.193	4.90	.0460	21
22	.0286	.0253	.0280	.0280	.0295	.213	5.40	.0483	22
23	.0258	.0226	.0250	.0240	.0270	.232	5.90	.0515	23
24	.0230	.0201	.0220	.0220	.0250	.252	6.40	.0550	24
25	.0204	.0179	.0200	.0200	.0230	.276	7.00	.0586	25
26	.0181	.0159	.0180	.0180	.0205	.299	7.60	.0626	26
27	.0173	.0142	.0160	.0164	.01875	.323	8.20	.0658	27
28	.0162	.0126	.0140	.0148	.0165	.346	8.80	.0720	28
29	.0150	.0113	.0130	.0136	.0155	.370	9.40	.0760	29
30	.0140	.0100	.0120	.0124	.01375	.394	10.00	.0800	30
31	.0132	.00893	.0100	.0116	.01225	....	....	.....	31
32	.0128	.00795	.0090	.0108	.01125	....	....	.....	32
33	.0118	.00708	.0080	.0100	.01025	....	....	.....	33
34	.0104	.0063	.0070	.0092	.0095	....	....	.....	34
35	.0095	.00561	.0050	.0084	.0090	....	....	.....	35
36	.0090	.0050	.0040	.0076	.0075	....	....	.....	36
37	.0085	.00445	.....	.0068	.0065	....	....	.....	37
38	.0080	.00396	.....	.0060	.00575	....	....	.....	38
39	.0075	.00353	.....	.0052	.0050	....	....	.....	39
40	.0070	.00314	.....	.0048	.0045	....	....	.....	40
41	.0066	.00280	.....	.0044	.....	....	....	.....	41
42	.0062	.00249	.....	.0040	.....	....	....	.....	42
43	.0060	.00222	.....	.0036	.....	....	....	.....	43
44	.0058	.00198	.....	.0032	.....	....	....	.....	44
45	.0055	.00176	.....	.0028	.....	....	....	.....	45
46	.0052	.00157	.....	.0024	.....	....	....	.....	46
47	.0050	.00140	.....	.0020	.....	....	....	.....	47
48	.0048	.00124	.....	.0016	.....	....	....	.....	48
49	.0046	.00099	.....	.0012	.....	....	....	.....	49
50	.0044	.00088	.....	.0010	.....	....	....	.....	50

PRECISION SIEVES, SHOWING SIZE OF OPENING IN BOTH INCH AND METRIC SIZES.

[Note equivalent metric sizes.]

TESTING SIEVES.

You can get an accurate test with the Tyler standard sieves, as the Tyler double-crimped cloth is used in their construction. This screen is square in mesh and made from the same gauge wire both ways; therefore dependable in testing.

The Tyler standard testing sieves are made 6 to 12 inches in diameter and from 2 to 200 mesh. For laboratory use the 6, 7, and 8 inch diameters with brass frames are recommended. These sizes are made with dies that produce a seamless metal rim, across which the cloth is stretched tightly.

The 6, 7, and 8 inch are also furnished with a bottom pan and cover, which are pressed from a sheet of metal and made to fit each sieve in the set. The use of pan and cover can not be urged too forcibly, as they facilitate the sifting operation and protect the fine wire cloth from injury when not in use.

Nested sieves are regularly supplied—that is, the extended rim of each sieve fits the top of another sieve of the same diameter, as shown in the accompanying illustration.

Telescope nests are made with the sieves to enclose one within the next size, but cost extra according to the number of sieves in the nest.

The Tyler standard testing sieves—Brass frames covered with brass wire cloth.

WIRE CLOTH SPECIFICATIONS.

Code word.	Number of meshes per lineal inch.	Diameter of wire, decimal of an inch.	Size of opening, decimal of an inch.	Size of opening in mm.
Kabey.....	20	.016	.0340	.864
Kabiz.....	24	.015	.0267	.678
Kabob.....	30	.0135	.0198	.503
Kabuc.....	40	.010	.0150	.381
Kacib.....	50	.009	.0110	.279
Kacoc.....	60	.008	.0087	.221
Kacud.....	70	.007	.0073	.185
Kadaz.....	80	.00575	.0068	.173
Kadeb.....	90	.00525	.0059	.150
Kadic.....	100	.0045	.0055	.140
Kadod.....	110	.00425	.00484	.123
Kaduf.....	120	.004	.00433	.110
Kafab.....	130	.0036	.00409	.104
Kafec.....	140	.0032	.00394	.100
Kafid.....	150	.003	.00367	.093
Kafof.....	160	.0028	.00345	.088
Kafug.....	170	.0026	.00328	.083
Kagac.....	180	.0024	.00315	.080
Kagif.....	190	.0022	.00306	.078
Kagog.....	200	.002	.0030	.076

Kahad, 6 inches diameter; Kahig, 7 inches diameter; Kajaf, 8 inches diameter; Kajeg, 10 inches diameter; Kajuk, 12 inches diameter; Kakok, include pan and cover.

PRICE EACH.

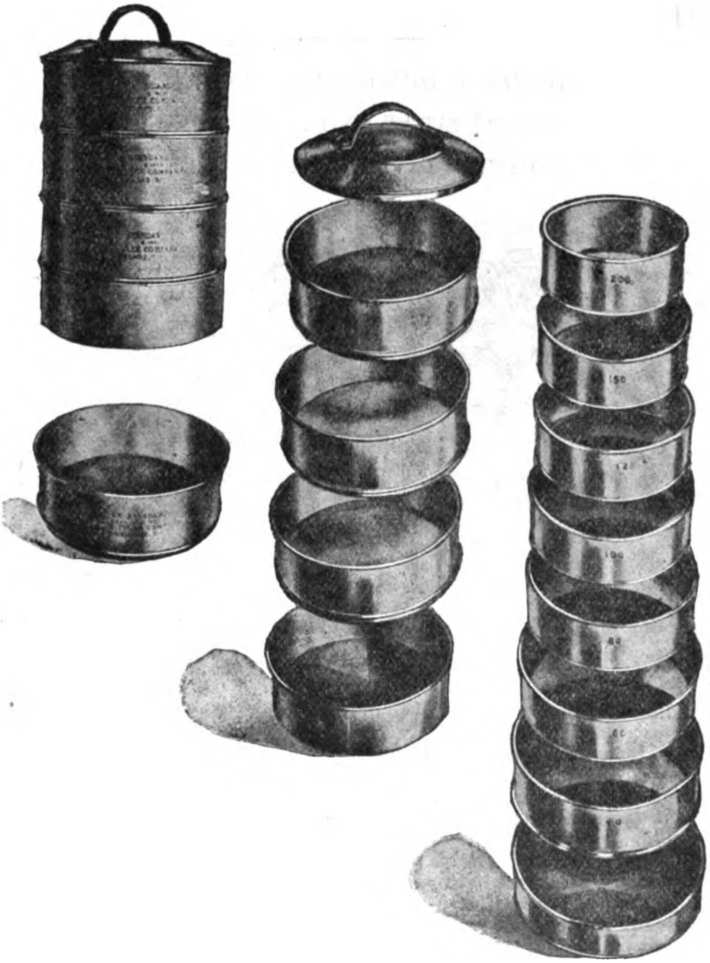
Number of meshes per lineal inch.	6 inches diameter.	7 inches diameter.	8 inches diameter.	10 inches diameter.	12 inches diameter.
20......	$1.70	$2.00	$2.35	$2.75	$3.35
24......	1.75	2.05	2.40	2.85	3.55
30......	1.80	2.10	2.45	2.95	3.75
40......	1.85	2.15	2.55	3.05	3.95
50......	1.95	2.25	2.65	3.15	4.15
60......	2.05	2.35	2.75	3.25	4.45
70......	2.20	2.45	2.85	3.35	4.75
80......	2.35	2.65	3.00	3.60	5.05
90......	2.50	2.80	3.15	4.00	5.45
100......	2.75	3.05	3.40	4.40	5.85
110......	3.00	3.30	3.65	4.80	6.25
120......	3.25	3.55	3.95	5.30	6.85
130......	3.50	3.85	4.35	5.80	7.45
140......	3.75	4.20	4.75	6.40	8.05
150......	4.00	4.60	5.25	7.00	8.65
160......	4.25	5.00	5.75	7.60	9.65
170......	4.50	5.40	6.25	8.20	10.65
180......	4.75	5.80	6.75	8.80	12.15
190......	5.00	6.25	7.25	9.40	14.00
200......	5.50	6.75	8.00	10.65	16.00

Brass pan and cover to fit 6 inches diameter sieve, $2.50; tinned steel, $2.25.

Brass pan and cover to fit 7 inches diameter sieve, $3.00; tinned steel, $2.75.

Brass pan and cover to fit 8 inches diameter sieve, $3.50; tinned steel, $3.25.

Pan and cover for 10 inches and 12 inches can be made to order, but with seam.



Telescope Nest. Made with the sieves to enclose one within the next size.
Nest of Three Sieves with Pan and Cover.
Nested Sieves. The extended rim of each sieve fits the top of another sieve of the same diameter.

METRIC AND CUSTOMARY DATA BOTH GIVEN IN A CATALOGUE SHOWING SPECIAL ENTERPRISE.

[Description is in three languages (English, French, German). Note sizes and weights are given in customary and metric (since France and Germany are both metric).]

DIVIDING HEAD AND TAILSTOCK.

TEILAPPARAT UND REITSTOCK.

APPAREIL DIVISEUR ET POUPÉE.

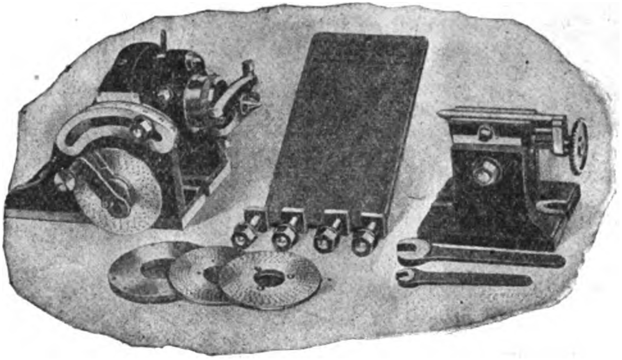


Fig........32 C

A description of our dividing heads is an epitome of the qualities to be desired in these tools.

THE SPECIAL FEATURES ARE:

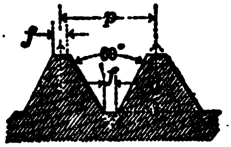
Large dividing gear for accuracy and to hold work firmly and prevent straining.
Wedge take-up for wear.
Quick index for milling squares, hexagons, etc., by large dial direct on spindle, except No. 2.
Provision for quickly taking out worm shaft as a whole, except No. 2.
Compactness and small vertical height.
Taper spindle.
Best adapted for overhanging work.
Interchangeability of arbors between head and main cutter spindle. B. & S. taper holes.
Dividing gear protected, but readily inspected.
Range of position beyond the vertical and below the horizontal.
Spindle nose threaded for chucks.
Clamp binder for spindle when doing heavy work, except No. 2.
Hole through spindle.
Index crank handle, and face plate and shank, in one piece—drop forgings.
Elevating and tilting tailstock for taper work.
Provision for passing close to line of centers.
Tail spindle bound its whole length without danger of throwing out of line.
Self-contained.
No part projects below the base line.
Divide all numbers up to 50 and a large proportion of numbers up to 360.
Index table in durable form printed directly on wood.

No...... No...... No......	Swing......... Drehdurchmesser. Diamètre admissible.		Between centers on 30″ slide. Zwischen spitzen 760 mm. verstellbar. Entre points, table de 760 mm.		Taper in spindle.... Konus im spindel.. Cône de broche.....	Hollow spindle. Hohl-spindel. Trou de Parbre.		Weight..... Gewicht.... Poids.......		Code. Schlusselwort. Code.
	In.	MM.	In.	MM.		In.	MM.	Lbs.	Kg.	
2	10⅛	257	13	330	No. 10 B. & S.	1 1/16	27	56	27	Adieu.
2½	11¼	286	9½	241	No. 10 B. & S.	1 1/16	27	83	38	Angel.
3	12¼	311	8½	216	No. 11 B. & S.	1¼	32	119	55	Adept.
4	14¾	374	8	203	No. 11 B. & S.	1¼	32	125	57	Adjourn.
5	16 5/16	414	4	102	No. 12 B. & S.	1½	38	252	115	Adjure.

DIVERSITY OF SCREW-THREAD SYSTEMS.

[Eight systems are shown in an American catalogue, of which three are metric.]

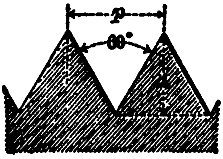
FORMS OF THREADS.



UNITED STATES STANDARD THREADS.

Formula. $\begin{cases} p = \text{pitch} = \dfrac{1}{\text{No. threads per inch}}. \\ d = \text{depth} = p \times .64952. \\ f = \text{flat} = \dfrac{p}{8}. \end{cases}$

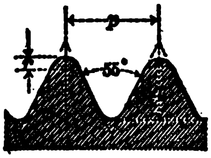
Size.	No. threads per inch.	Size.	No. threads per inch.	Size.	No. threads per inch.	Size.	No. threads per inch.	Size.	No. threads per inch.
Inches.		*Inches.*		*Inches.*		*Inches.*		*Inches.*	
¼	20	¾	10	1⅝	5½	2½	4	3⅜	3¼
5/16	18	⅞	9	1¾	5	2⅝	4	3½	3¼
⅜	16	1	8	1⅞	5	2¾	4	3⅝	3¼
7/16	14	1⅛	7	2	4½	2⅞	3½	3¾	3
½	13	1¼	7	2⅛	4½	3	3½	3⅞	3
9/16	12	1⅜	6	2¼	4½	3⅛	3½	4	3
⅝	11	1½	6	2⅜	4	3¼	3½		



SHARP "V" THREAD.

Formula. $\begin{cases} p = \text{pitch} = \dfrac{1}{\text{No. threads per inch}}. \\ d = \text{depth} = p \times .86603. \end{cases}$

Size.	No. threads per inch.	Size.	No. threads per inch.	Size.	No. threads per inch.	Size.	No. threads per inch.	Size.	No. threads per inch.
Inches.		*Inches.*		*Inches.*		*Inches.*		*Inches.*	
¼	20	¾	10	1½	6	2½	4	3½	3¼
5/16	18	13/16	10	1⅝	5	2⅝	4	3⅝	3¼
⅜	16	⅞	9	1¾	5	2¾	4	3¾	3
7/16	14	15/16	9	1⅞	4½	2⅞	4	3⅞	3
½	12	1	8	2	4½	3	3½	4	3
9/16	12	1⅛	7	2⅛	4½	3⅛	3½		
⅝	11	1¼	7	2¼	4½	3¼	3½		
11/16	11	1⅜	6	2⅜	4½	3⅜	3½		



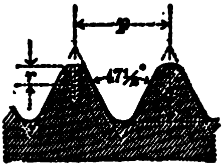
WHITWORTH STANDARD THREADS.

Formula. $\begin{cases} p = \text{pitch} = \dfrac{1}{\text{No. threads per inch}}. \\ d = \text{depth} = p \times .64033. \\ r = \text{radius} = p \times .1373. \end{cases}$

Size.	No. threads per inch.	Size.	No. threads per inch.	Size.	No. threads. per inch.	Size.	No. threads per inch.	Size.	No. threads. per inch.
Inches.		*Inches.*		*Inches.*		*Inches.*		*Inches.*	
¼	20	¾	10	1½	6	2½	4	3½	3¼
5/16	18	13/16	10	1⅝	5	2⅝	4	3⅝	3¼
⅜	16	⅞	9	1¾	5	2¾	3½	3¾	3
7/16	14	15/16	9	1⅞	4½	2⅞	3½	3⅞	3
½	12	1	8	2	4½	3	3½	4	3
9/16	12	1⅛	7	2⅛	4½	3⅛	3½		
⅝	11	1¼	7	2¼	4	3¼	3½		
11/16	11	1⅜	6	2⅜	4	3⅜	3½		

FORMS OF THREADS—Continued.

BRITISH ASSOCIATION STANDARD THREAD.

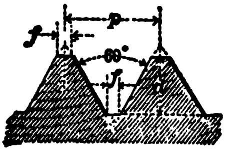


$$\text{Formula.}\begin{cases} p=\text{pitch.} \\ d=\text{depth}=p\times .6. \\ r=\text{radius}=\frac{2\times p}{11}. \end{cases}$$

No.	Diameter.	Pitch (p).	No.	Diameter.	Pitch (p).	No.	Diameter.	Pitch (p).
	mm.	*mm.*		*mm.*	*mm.*		*mm.*	*mm.*
0	6.0	1.00	5	3.2	0.59	10	1.7	0.35
1	5.3	0.90	6	2.8	0.53	12	1.3	0.28
2	4.7	0.81	7	2.5	0.48	14	1.0	0.23
3	4.1	0.73	8	2.2	0.43	16	.79	0.19
4	3.64	0.66	9	1.9	0.39			

INTERNATIONAL AND FRENCH STANDARD THREAD.

(Metric system.)



$$\text{Formula.}\begin{cases} p=\text{pitch.} \\ d=\text{depth}=p\times .64952. \\ f=\text{flat}=\frac{p}{8}. \end{cases}$$

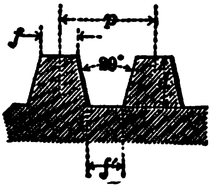
INTERNATIONAL STANDARD.

Size.	Pitch.	Size.	Pitch.	Size.	Pitch.
mm.	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*
6	1.0	20	2.5	48	5.0
7	1.0	22	2.5	52	5.0
8	1.25	24	3.0	56	5.5
9	1.25	27	3.0	60	5.5
10	1.5	30	3.5	64	6.0
11	1.5	33	3.5	68	6.0
12	1.75	36	4.0	72	6.5
14	2.0	39	4.0	76	6.5
16	2.0	42	4.5	80	7.0
18	2.5	45	4.5		

FRENCH STANDARD.

Size.	Pitch.	Size.	Pitch.	Size.	Pitch.
mm.	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*
3	0.5	16	2.0	36	4.0
4	0.75	18	2.5	38	4.0
5	0.75	20	2.5	40	4.0
6	1.0	22	2.5	42	4.5
7	1.0	24	3.0	44	4.5
8	1.0	26	3.0	46	4.5
9	1.0	28	3.0	48	5.0
10	1.5	30	3.5	50	5.0
12	1.5	32	3.5		
14	2.0	34	3.5		

ACME STANDARD SCREW THREAD.

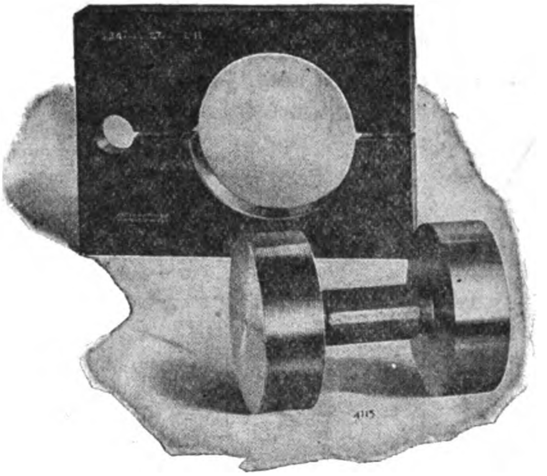


$$\text{Formula.}\begin{cases} p=\text{pitch}=\frac{1}{\text{No. threads per inch}}. \\ d=\text{depth}=\tfrac{1}{2}\,p+.010. \\ f=\text{flat on top of thread}=p\times .3707. \\ f'=\text{``on bottom of thread}=p\times .3707-.0052. \end{cases}$$

NOTE THE STATEMENT THAT EQUIPMENT IS COMPLETE FOR METRIC THREAD GAUGES; ALSO NOTE METRIC SCREW-THREAD SYSTEM, PRINTED IN DETAIL.

INTERNATIONAL AND FRENCH STANDARD THREAD GAUGES.

(Metric system.)



Pratt & Whitney Co. has for many years been an extensive maker of metric thread gauges, both regular and special sizes. In design they are similar to the standard type of thread gauge. The equipment for their manufacture is complete, the gauges being hardened and accurately finished in the angle of the thread.

Diameter of screw.	Pitch.	Diameter at root of thread.	Width of flat.	Prices.	Diameter of screw.	Pitch.	Diameter at root of thread.	Width of flat.	Prices.
m/m	*m/m*	*m/m*	*m/m*	Prices quoted upon application.	*m/m*	*m/m*	*m/m*	*m/m*	Prices quoted upon application.
3	0.5	2.35	0.06		27	3.0	23.10	0.38	
4	0.75	3.03	.09		28	3.0	24.10	.38	
5	0.75	4.03	.09		30	3.5	25.45	.44	
6	1.0	4.70	.13		32	3.5	27.45	.44	
7	1.0	5.70	.13		33	3.5	28.45	.44	
8	1.0	6.70	.13		34	3.5	29.45	.44	
8	1.25	6.38	.16		36	4.0	30.80	.5	
9	1.0	7.70	.13		38	4.0	32.80	.5	
9	1.25	7.38	.16		39	4.0	33.80	.5	
10	1.5	8.05	.19		40	4.0	34.80	.5	
11	1.5	9.05	.19		42	4.5	36.15	.56	
12	1.5	10.05	.19		44	4.5	38.15	.56	
12	1.75	9.73	.22		45	4.5	39.15	.56	
14	2.0	11.40	.25		46	4.5	40.15	.56	
16	2.0	13.40	.25		48	5.0	41.51	.63	
18	2.5	14.75	.31		50	5.0	43.51	.63	
20	2.5	16.75	.31		52	5.0	45.51	.63	
22	2.5	18.75	.31		56	5.5	48.86	.69	
24	3.0	20.10	.38		60	5.5	52.86	.69	
26	3.0	22.10	.38						

NOTE THAT CHANGE GEARS "WILL CUT THE MOST PERFECT OF THREADS FROM 14 TO 200 PER INCH IN ENGLISH OR METRIC MEASURE."

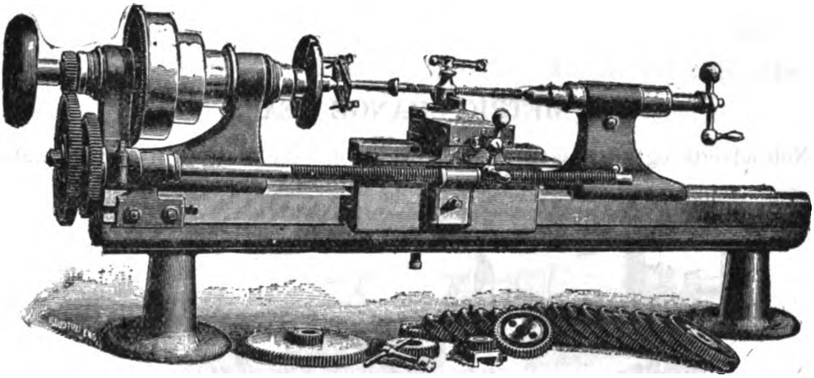


FIG. 6.—No. 5 lathe with screw-cutting attachment.

DESCRIPTION OF NO. 5 LATHE WITH SCREW-CUTTING ATTACHMENT.

THE SCREW-CUTTING ATTACHMENT

is a complete fixture in itself, and is fastened directly to the lathe bed. The change gears are cut with the greatest care, and will cut the most perfect of threads from 14 to 200 per inch in English or metric measure.

THE LEAD SCREW

runs in adjustable cone bearings fitted to a bracket which is attached to the T slot at the left front of the bed, has a 20 per inch thread ½ inch (1.27 cm.) in diameter, 9¼ inches (23.49 cm.) long, and cuts threads about 4 inches (10.16 cm.) long. These lead screws are cut by the use of a special precision screw, used for no other purpose, and practically without errors. The gear change is very simple and quickly made, as will be seen by the gear change table.

METRIC THREADS.

The change from English to metric threads is made in the usual manner by the introduction of a 50-tooth and a 127-tooth gear screwed together into the gear train from the spindle to the screw which translates inches into centimeters.

TAPER SCREWS.

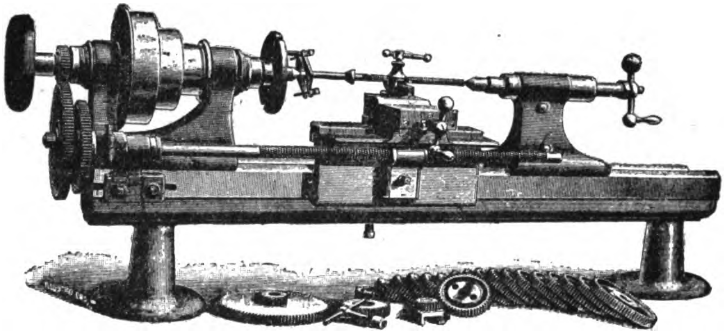
The cross slide which carries the tool post slide is a double dovetail, one part seated in the top of the lead screw driven slide, and the other top dovetail is fitted to the tool post slide. The screw cutting slide always moves in one plane, parallel to the plane of the lead screw axis. A movable guide, spring held at each end, can be shifted by means of a screw at each end so as to give the cross slide, which carries the tool post, a limited traverse movement crosswise of the lathe as the slide is drawn along, so that screws may be cut either truly cylindrical or taper in either direction, the extreme variation being about ¾ inch to the foot.

LEFT-HAND THREADS.

are cut by the use of an extra intermediate pinion mounted on a block which slides on the change gear arm. The change gear arm has a split bearing and pinching screw support on the lead screw, which gives friction to hold the arm wherever it is placed.

METRIC CHANGE GEARS.

[Note advertising that gear may be applied to this lathe, which will then be available for cutting metric screw threads.]



Screw cutting attachment is a complete fixture in itself, and is fastened directly to the lathe bed. A set of 25 change gears of extreme accuracy will cut the most perfect of threads from 14 to 200 per inch in English or metric measure. By obtaining extra gears threads as coarse as 10 per inch and as fine as 300 can be cut.

The lead screw runs in adjustable cone bearings fitted to a bracket which is attached to the T slot at the left front of the bed, has a 20 per inch thread ½ inch (1.27 cm.) in diameter, 9¼ inches (23.49 cm.) long, and cuts threads up to 7 inches (17.87 cm.) in length. These lead screws are cut by the use of a special precision screw, used for no other purpose, and practically without errors. The gear change is very simple and quickly made, as will be seen by the gear change table.

The change from English to metric threads is made in the usual manner by the introduction of a 50-tooth and a 127-tooth gear, screwed together, into the gear train from the spindle to the screw, which translates inches into centimeters.

The cross slide which carries the tool post slide is a double dovetail, one part seated in the top of the lead screw driven slide, and the other top dovetail is fitted to the tool post slide. The screw cutting slide always moves in one plane, parallel to the plane of the lead screw axis. A movable guide, spring held at each end, can be shifted by means of a screw at each end, so as to give the cross slide, which carries the tool post, a limited traverse movement crosswise of the lathe as the slide is drawn along, so that screws may be cut either truly cylindrical or taper in either direction, the extreme variation being about ⅜ inch to the foot.

SHOWING METHOD OF TABULATING CHANGE GEARS REQUIRED FOR METRIC SCREW CUTTING.

Left-hand threads are cut by the use of an extra intermediate pinion mounted on a block which slides on the change gear arm. The change gear arm has a split bearing and pinching screw support on the lead screw, which gives friction to hold the arm wherever it is placed.

The entire screw cutting scheme of this lathe is extremely simple, very easily understood, and very quickly handled, and permits the production of either straight or taper screws with the greatest degree of precision.

TABLE OF CHANGE GEARS FOR ENGLISH MEASURE.

Threads per inch.	Gear on spindle.	Intermediate.	Gear on screw.	Threads per inch.	Gear on spindle.	Intermediate.	Gear on screw.	Threads per inch.	Gear on spindle.	Intermediate.	Gear on screw.	Threads per inch.	Gear on spindle.	Intermediate.	Gear on screw.
14	60	1	42	36	40	1	72	68	40	½	68	120	40	½	60
16	“	“	48	38	“	“	76	70	“	“	70	128	“	“	64
18	“	“	54	40	“	“	80	72	“	“	72	136	“	“	68
20	“	“	60	42	“	“	84	76	“	“	76	140	“	“	70
21	40	“	42	44	“	“	88	80	“	“	80	144	“	“	72
22	“	“	44	45	“	“	90	84	“	“	84	152	“	“	76
24	“	“	48	46	“	“	92	88	“	“	88	160	“	“	80
26	“	“	52	48	“	“	96	90	“	“	90	168	“	“	84
27	“	“	54	50	“	“	100	92	“	“	92	176	“	“	88
28	“	“	56	52	“	½	52	96	“	“	96	180	“	“	90
30	“	“	60	54	“	“	54	100	“	“	100	184	“	“	92
32	“	“	64	56	“	“	56	104	“	½	52	192	“	“	96
34	“	“	68	60	“	“	60	108	“	“	54	200	“	“	100
35	“	“	70	64	“	“	64	112	“	“	56				

TABLE OF CHANGE GEARS FOR METRIC MEASURE.

14	60	$\frac{50}{127}$	42	32	40	$\frac{50}{127}$	64	48	40	$\frac{50}{127}$	96	78	40	$\frac{25}{127}$	78
16	“	“	48	34	“	“	68	50	“	“	100	80	“	“	80
18	“	“	54	35	“	“	70	52	60	25/127	78	81	“	“	81
20	“	“	60	36	“	“	72	54	“	“	81	84	“	“	84
21	40	“	42	38	“	“	76	56	“	“	84	88	“	“	88
22	“	“	44	39	“	“	78	60	“	“	90	90	“	“	90
24	“	“	48	40	“	“	80	64	“	“	96	92	“	“	92
26	“	“	52	42	“	“	84	68	“	“	102	96	“	“	96
27	“	“	54	44	“	“	88	70	“	“	105	100	“	“	100
28	“	“	56	45	“	“	90	72	“	“	108				
30	“	“	60	46	“	“	92	76	“	“	114				

METRIC LEAD SCREWS.

[Note that this lathe may be supplied to cut metric screw threads.]

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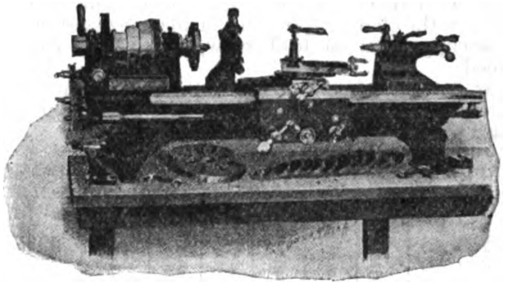
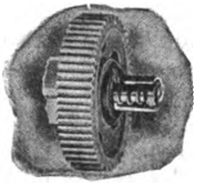
9 AND 11 INCH "STAR" SCREW-CUTTING ENGINE LATHES.



Screw cutting.—The range is extremely wide (see page 22), cutting all standard threads, right or left (including 11½ and 27), from 3 to 64 without compounding the gears, and nearly all threads by compounding. When desired to cut both standard and metric threads, can furnish, for a slight advance in price, transposing gears and index for cutting international standard metric threads from 0.5 mm. to 8 mm.

Lead screw.—Cut from a master screw by a new process from 30 per cent carbon steel making an accurate, durable, and most desirable lead screw. When desired to cut metric threads only, can furnish metric lead screw and index in place of the regular lead screw and index at same price.

Spring nuts.—Our patented spring nuts used in connection with split washers hold the change gears in place. They are easy and convenient to operate and allow quick shifts of the change gears.



Spring nut for holding change gears.

Bed is broad, deep, thoroughly well braced, and is accurately proportioned throughout. The rack is in one piece accurately cut from cold-drawn steel.

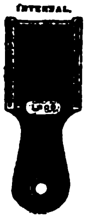
Countershaft (see page 22) has patented friction clutch pulleys easy to operate, strong and durable, also has self-aligning and self-oiling shaft bearings. The pulleys and friction bands are provided with self-closing oil cups.

Electric motor drive.—We can furnish these lathes arranged to be driven by direct-connected electric motors, and will give further information on request.

AN EXCELLENT EXAMPLE OF DUPLICATE LINES OF MEASURING INSTRUMENTS CARRIED IN BOTH METRIC AND ENGLISH SIZES (STANDARD CALIPER GAUGES).

Standard Caliper Gauges.

Style 1.



Style 3.

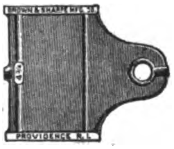
Style 2.

The standard caliper gauges are carefully hardened and ground and accurately lapped to size. By their use mistakes in the setting of calipers and variations in measurements by different workmen will be in a great measure avoided. Their form gives lightness and strength, making them preferable to plugs and rings for frequent use. The measuring surfaces are amply large to insure accurate measurements and the maintenance of gauge sizes. As furnishing convenient and reliable standard sizes for everyday use in the workshop, they are of great advantage, and their use will contribute to uniformity in the production of the working parts of machinery.

These gauges are furnished with both ends finished, one end for internal and the other for external measurements, in sizes to three inches. They are also furnished in these sizes with one end only finished, either for internal or for external measurements, and provided with handles.

For lists of caliper gauges, see following pages.

Style 4.


BROWN & SHARPE MFG. CO.
PROVIDENCE, R. I.

Style 5.

For convenience in handling, the standard caliper gauges in sizes above three inches are made as shown in cut.

Standard caliper gauges.

[BOTH ENDS FINISHED.]

NO. 665 ENGLISH—STYLE 1.

Size.	Both ends finished.	Size.	Both ends finished.	Size.	Both ends finished.	Size.	Both ends finished.
Inches.		*Inches.*		*Inches.*		*Inches.*	
¼	$2.50	15/16	$2.65	1⅝	$3.30	2 5/16	$4.30
5/16	2.50	1	2.70	1 11/16	3.40	2⅜	4.40
⅜	2.50	1 1/16	2.75	1¾	3.50	2 7/16	4.50
7/16	2.50	1⅛	2.80	1 13/16	3.60	2½	4.60
½	2.50	1 3/16	2.85	1⅞	3.70	2 9/16	5.00
9/16	2.50	1¼	2.90	1 15/16	3.80	2⅝	5.25
⅝	2.50	1 5/16	2.95	2	3.90	2 11/16	5.50
11/16	2.50	1⅜	3.00	2 1/16	3.95	2¾	5.50
¾	2.50	1 7/16	3.05	2⅛	4.00	2 13/16	6.00
13/16	2.55	1½	3.10	2 3/16	4.10	2⅞	6.00
⅞	2.60	1 9/16	3.20	2¼	4.20	2 15/16	6.00

NO. 666 METRIC.

Size.	Both ends finished.	Size.	Both ends finished.	Size.	Both ends finished.	Size.	Both ends finished.
m/m		*m/m*		*m/m*		*m/m*	
5	$2.50	23	$2.65	41	$3.30	59	$4.30
6	2.50	24	2.65	42	3.40	60	4.40
7	2.50	25	2.70	43	3.00	61	4.50
8	2.50	26	2.75	44	3.50	62	4.50
9	2.50	27	2.75	45	3.50	63	4.60
10	2.50	28	2.80	46	3.60	64	4.60
11	2.50	29	2.85	47	3.70	65	5.00
12	2.50	30	2.85	48	3.70	66	5.25
13	2.50	31	2.90	49	3.80	67	5.25
14	2.50	32	2.90	50	3.90	68	5.50
15	2.50	33	2.95	51	3.90	69	5.50
16	2.50	34	3.00	52	3.95	70	5.50
17	2.50	35	3.00	53	3.95	71	6.00
18	2.50	36	3.05	54	4.00	72	6.00
19	2.50	37	3.05	55	4.10	73	6.00
20	2.55	38	3.10	56	4.10	74	6.00
21	2.55	39	3.20	57	4.20	75	6.00
22	2.60	40	3.20	58	4.30		

REGULAR LINE OF INCH-SIZE TAPS FOR CUTTING SCREW THREADS.

(Compare with similar line, metric size, on next page.)

MACHINISTS' HAND TAPS.

Diameter inches.		Total length, inches.	Number of threads to the inch.					Price.	
Standard size.	Rough iron size.		United States standard.	V-form.	Whitworth standard.	Other threads also furnished.		Each.	Per set.
						U. S. form.	V-form.		
1/2	....	3 3/8	13	12	12	12, 20, 27	13, 14, 16, 20, 24, 27	$0.70	$2.10
	33/64	3 3/8	13	12	....	....	....	.70	2.10
	17/32	3 3/8	13	12	....	....	....	.70	2.10
9/16	....	3 19/32	12	12	12	18, 27	14, 27	.80	2.40
	37/64	3 19/32	12	12	....	....	....	.80	2.40
	19/32	3 19/32	12	12	....	....	....	.80	2.40
5/8	....	3 13/16	11	11	11	12, 18, 27	10, 12, 20, 24, 27	.90	2.70
	41/64	3 13/16	11	11	....	....	....	.90	2.70
	21/32	3 13/16	11	11	....	....	....	.90	2.70
11/16	....	4 1/32	11	11	11	12, 16	10, 12	1.05	3.15
	45/64	4 1/32	11	11	....	....	....	1.05	3.15
3/4	....	4 1/4	10	10	10	12, 16, 27	12, 20, 27	1.20	3.60
	49/64	4 1/4	10	10	....	....	....	1.20	3.60
13/16	....	4 15/32	10	10	10	12	12	1.40	4.20
	53/64	4 15/32	10	10	....	....	....	1.40	4.20
7/8	....	4 11/16	9	9	9	12, 14, 18, 27	10, 12, 27	1.60	4.80
	57/64	4 11/16	9	9	....	....	....	1.60	4.80
15/16	....	4 29/32	9	9	9	12	12	1.80	5.40
	61/64	4 29/32	9	9	....	....	....	1.80	5.40
1	....	5 1/8	8	8	8	12, 14, 27	12, 27	2.00	6.00
	1 1/32	5 1/8	8	8	....	....	....	2.00	6.00
1 1/16	....	5 1/8	8	8	....	....	12	2.15	6.45
1 1/8	....	5 7/16	7	7	7	12	8, 12	2.25	6.75
	1 5/32	5 7/16	7	7	....	....	....	2.25	6.75
1 3/16	....	5 7/16	7	7	....	....	....	2.45	7.35
1 1/4	....	5 3/4	7	7	7	12	12	2.60	7.80
	1 9/32	5 3/4	7	7	....	....	....	2.60	7.80
1 5/16	....	5 3/4	7	7	....	....	....	2.80	8.40
1 3/8	....	6 1/16	6	6	6	....	....	3.00	9.00
	1 13/32	6 1/16	6	6	....	....	....	3.00	9.00
1 7/16	....	6 1/16	6	6	....	....	....	3.25	9.75
1 1/2	....	6 3/8	6	6	6	....	....	3.50	10.50
	1 17/32	6 3/8	6	6	....	....	....	3.50	10.50
1 5/8	....	6 11/16	5 1/2	....	5	....	....	4.20	12.60
1 3/4	....	7	5	....	5	....	....	5.00	15.00

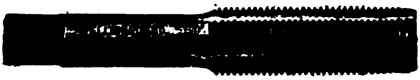
These taps, up to 1 in., are packed for dealers in sets of three—taper, plug, and bottoming—and in lots of one dozen of each kind.

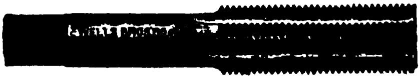
Taps larger than 1 in. are packed in sets of three—taper, plug, and bottoming.

METRIC HAND TAPS FOR CUTTING SCREW THREADS OF METRIC SIZES.

Machinists' Hand Taps.

FRENCH AND INTERNATIONAL STANDARDS.





We carry in stock taps in the metric sizes in the French and International Standards, which are listed on the opposite page.

We are prepared to furnish at short notice other sizes of taps in these standards, and will be glad to quote prices on request.

All orders for these taps should specify clearly in *which* standard taps are wanted—the French *or* the International.

Machinists' hand taps.

FRENCH AND INTERNATIONAL STANDARDS.

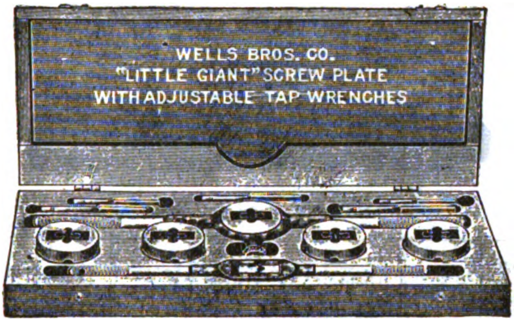
[Left-hand taps are Special, and subject to special prices.

Diameter in millimeters.	Pitch in millimeters.		Price each.	Price per set.
	French standard.	International standard.		
3	0.50		$0.35	$1.05
4	0.75		.35	1.05
5	0.75		.35	1.05
6	1.00	1.00	.45	1.35
7	1.00	1.00	.45	1.35
8	1.00	1.25	.50	1.50
9	1.00	1.25	.55	1.65
10	1.50	1.50	.55	1.65
11		1.50	.60	1.80
12	1.50	1.75	.70	2.10
14	2.00	2.00	.80	2.40
16	2.00	2.00	.90	2.70
18	2.50	2.50	1.05	3.15
20	2.50	2.50	1.40	4.20
22	2.50	2.50	1.60	4.80
24	3.00	3.00	1.80	5.40

These taps are packed for dealers in sets of three—taper, plug, and bottoming—and in lots of one dozen of each kind.

METRIC PLATES FOR CUTTING SCREW THREADS.

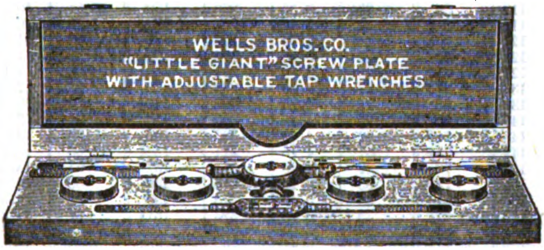
SCREW PLATES.



Assortment No. 1.

Stock 14½ in. long. Adjustable tap wrench No. 5. Taper taps, dies. Collets 2 in. diameter.

Cutting $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$ $12.00



Assortment No. 2.

Stock 23 in. long. Adjustable tap wrench No. 6. Taper taps, dies. Collets 2¾ in. diameter.

Cutting $\frac{1}{4}^{20}$, $\frac{3}{8}^{16}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$ $13.50

U. S. S. threads furnished unless otherwise ordered. V-form threads, exact size and over size, Whitworth threads, and A. L. A. M. threads furnished, when specified in the order, at regular list prices.

All sizes and threads not listed are SPECIAL and subject to special prices. Left-hand threads are SPECIAL.

Dealers are advised to order these assortments in half dozen lots for economy and facility in shipping.

NOTE FULL LINE OF HAND REAMERS IN METRIC UNITS.

MILLIMETER SIZES.

STANDARD HAND REAMERS.

No. 122M—*Code*, Anticipate.

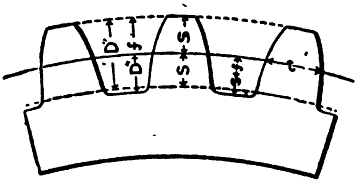
Diam.	Price each.	Length over all.	Length flute.	Diam.	Price each.	Length over all.	Length flute.	Diam.	Price each.	Length over all.	Length flute.
Mm.		*Mm.*	*Mm.*	*Mm.*		*Mm.*	*Mm.*	*Mm.*		*Mm.*	*Mm.*
3	$1.00	76	38	19	$2.60	213	106½	45	$8.10	343	171½
3½	1.10	79	39½	19½	2.70	222	111	46	8.40	343	171½
4	1.10	82	41	20	2.75	226	113	47	8.60	356	178
4½	1.20	89	44½	20½	2.80	230	115	48	8.90	356	178
5	1.25	92	46	21	2.90	233	116½	49	9.20	356	178
5½	1.30	95	47½	21½	3.00	241	120½	50	9.40	356	178
6	1.40	102	51	22	3.10	246	123	51	9.70	368	184
6½	1.40	105	52½	22½	3.20	251	125½	52	10.00	368	184
7	1.45	108	54	23	3.25	256	128	53	10.20	368	184
7½	1.50	112	56	23½	3.35	260	130	54	10.40	368	184
8	1.50	117	58½	24	3.40	267	133½	55	10.70	381	190½
8½	1.55	121	60½	24½	3.55	272	136	56	11.00	381	190½
9	1.60	124	62	25	3.60	274	138	57	11.30	381	190½
9½	1.60	127	63½	26	3.80	281	140½	58	11.60	381	190½
10	1.70	133	66½	27	4.00	290	145	59	12.00	381	190½
10½	1.70	136	68	28	4.25	295	147½	60	12.30	381	190½
11	1.75	140	70	29	4.45	300	150	61	12.55	394	197
11½	1.85	143	71½	30	4.60	306	152	62	12.90	394	197
12	1.85	149	74½	31	4.75	311	155½	63	13.30	394	197
12½	1.90	152	76	32	4.90	314	157	64	13.70	394	197
13	1.95	155	77½	33	5.15	316	158	65	14.00	394	197
13½	1.95	162	81	34	5.40	318	159	66	14.30	406	203
14	2.00	165	82½	35	5.60	323	161½	67	14.80	406	203
14½	2.10	168	84	36	5.90	325	162½	68	15.40	406	203
15	2.10	171	85½	37	6.15	329	164½	69	15.80	406	203
15½	2.20	178	89	38	6.40	330	165	70	16.40	406	203
16	2.20	182	91	39	6.60	330	165	71	17.00	419	209½
16½	2.30	187	93½	40	6.90	330	165	72	17.40	419	209½
17	2.40	190	95	41	7.20	330	165	73	17.80	419	209½
17½	2.40	200	100	42	7.40	343	171½	74	18.40	419	209½
18	2.50	206	103	43	7.60	343	171½	75	19.00	419	209½
18½	2.60	209	104½	44	7.90	343	171½				

Our reamers are made with eccentric flutes and are slightly tapered on end to facilitate entering work.

Specify all tools by our list numbers.

A LINE OF METRIC CUTTERS FOR CUTTING THE TEETH OF GEAR WHEELS ACCORDING TO THE METRIC SYSTEM.

[From a standard catalogue.]



Pitches commonly used.

[Module in millimetres.]

Module.	Corresponding English diametral pitch.	Module.	Corresponding English diametral pitch.	Module.	Corresponding English diametral pitch.
mm.		*mm.*		*mm.*	
½	50. 800	2. 75	9. 236	8	3. 175
¾	33. 867	1⅞	8. 466	9	2. 822
1. 5	25. 400	3. 5	7. 257	10	2. 540
1. 25	20. 320	4	6. 350	11	2. 309
1.	16. 933	4. 5	5. 644	12	2. 117
1. 75	14. 514	5	5. 080	13	1. 954
2	12. 700	5. 5	4. 618	14	1. 814
2. 25	11. 288	6	4. 233	15	1. 693
2. 5	10. 160	7	3. 628	16	1. 587

PATENT METRIC INVOLUTE CUTTERS FOR TEETH OF GEAR WHEELS.

We are prepared to furnish, at short notice, cutters for cutting the teeth of gear wheels according to the metric system.

Module is the pitch diameter in millimetres divided by the number of teeth in the gear.

Pitch diameter in millimetres is the module multiplied by the number of teeth in the gear.

M=module. D′=pitch diameter in mm.
N=No. of teeth in gear. D′=M×N.

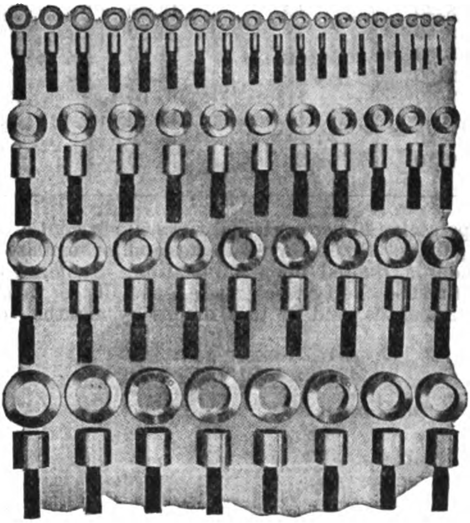
For example: M=3.50 mm; N=100; D′=3.50×100=350 mm.

Module.	Diameter of cutter.		Size of hole.	Price per cutter.	
	Carbon steel.	High-speed steel.		Carbon steel.	High-speed steel.
	"	"	"		
½	1¾	1¾	⅞ or 22	$2.30	$3.00
¾	1¾	1¾	⅞ or 22	2.30	3.00
1	1¾	1¾	⅞ or 22	2.60	3.10
1¼	1⅞	1⅞	⅞ or 22	2.80	3.30
1½	2	2⅛	⅞ or 22	3.00	3.50
1¾	2	2⅛	⅞ or 22	3.20	3.75
2	2⅛	2¼	⅞ or 22	3.60	4.25
2¼	2¼	2⅜	⅞ or 22	3.80	4.50
2½	2¼	2⅜	⅞ or 22	4.00	5.00
2¾	2⅜	2½	1 or 27	4.20	5.50
3	2⅞	2⅞	1 or 27	4.40	6.00
3¼	2⅞	2⅞	1 or 27	4.40	6.00
3½	2⅞	2⅞	1 or 27	4.60	7.00
3¾	2⅞	2⅞	1 or 27	4.60	7.00
4	3	3⅛	1 or 27	4.80	8.00
4¼	3	3⅛	1 or 27	4.80	8.00
4½	3⅝	3¼	1¼ or 32	5.50	9.00
4¾	3⅝	3¼	1¼ or 32	5.50	9.00
5	3⅝	3¼	1¼ or 32	5.50	10.00
5¼	3⅝	3¼	1¼ or 32	5.50	10.00
5½	3¾	4	1¼ or 32	6.00	11.00
5¾	3¾	4	1¼ or 32	6.00	11.00
6	3⅞	4¼	1¼ or 32	6.50	12.00
7	4⅛	4½	1¼ or 32	7.25	14.00
8	4⅜	4¾	1¼ or 32	8.50	18.00
9	5⅛	5½	1½ or 40	10.50	20.00
10	5½	5¾	1½ or 40	11.50	23.00
11	5¾	5¾	1½ or 40	13.50	28.00
12	5¾	5¾	1½ or 40	16.50	35.00

NOTE CONTINUED REFERENCE TO CUSTOMARY AND METRIC UNITS ON A SIMILAR BASIS OF AVAILABILITY.

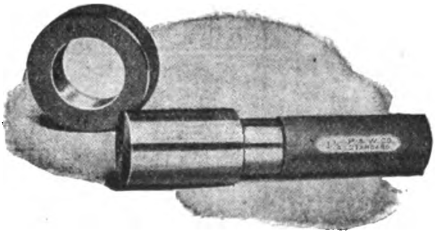
[From a well-known catalogue of measuring instruments.]

STANDARD CYLINDRICAL SIZE GAUGES, PLUG AND TEMPLET.



These gauges are made of steel, specially hardened and treated, and after being ground are seasoned and lapped round and straight, the sizes representing accurate subdivisions of the British Imperial yard or of the standard meter. Great care is taken in their manufacture, for upon them depends in a large measure the maintenance of an absolute standard. The sizes run from $\frac{1}{16}$ to 6 inches, or their equivalent in millimeters, with any subdivision of the inch or meter. Plug gauges up to 3 inches or 76 millimeters diameter are made solid. Above that, and up to 6 inches or 152 millimeters, they are hollow, thus reducing the weight. They are made of ample length and thickness, insuring strength and rigidity.

Prices of sizes by sixty-fourths, thirty-seconds, thousandths, or ten-thousandths of an inch, or varying by any other subdivision of an inch, or corresponding metric sizes, quoted upon application.



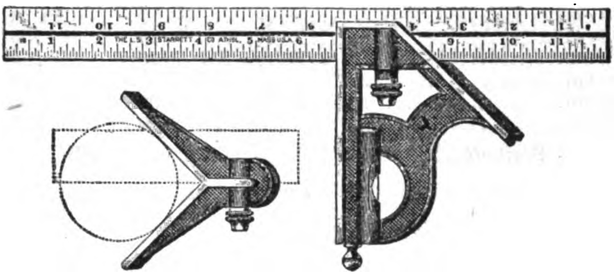
Size, inches.	Price of plug and templet.	Size, inches.	Price of plug and templet.	Size, inches.	Price of plug and templet.
1/16	$7.40	1 1/16	$10.20	2 1/16	$16.70
1/8	7.40	1 1/8	10.60	2 1/8	17.20
3/16	7.40	1 3/16	11.00	2 3/16	17.70
1/4	7.40	1 1/4	11.40	2 1/4	18.20
5/16	7.60	1 5/16	11.80	2 5/16	18.70
3/8	7.80	1 3/8	12.20	2 3/8	19.20
7/16	8.00	1 7/16	12.60	2 7/16	19.70
1/2	8.20	1 1/2	13.00	2 1/2	20.20
9/16	8.40	1 9/16	13.40	2 9/16	20.70
5/8	8.60	1 5/8	13.80	2 5/8	21.20
11/16	8.80	1 11/16	14.20	2 11/16	21.70
3/4	9.00	1 3/4	14.60	2 3/4	22.20
13/16	9.20	1 13/16	15.00	2 13/16	22.70
7/8	9.40	1 7/8	15.40	2 7/8	23.20
15/16	9.60	1 15/16	15.80	2 15/16	23.70
1	9.80	2	16.20	3	24.20

Plugs ordered separately, 40 per cent, and rings 60 per cent of above list prices for special cylindrical gauges. Sizes above 3 inches and for regular sizes in sets, in English or metric standards, quoted upon application. Standard or special sets sent securely packed in finished cherry cases, made especially for them. Regular sets are 1/16 to 2 inches by sixteenths, and 2 1/8 to 3 inches by eighths, inclusive, plugs and templets.

NOTE SAME PRICES FOR METRIC AS FOR CORRESPONDING INCH SIZES OF COMBINATION SQUARE.

Starrett Patent Combination Square No. 11.

With hardened blade.



Every tool warranted accurate. With the adjustable scale this forms one of the most convenient and useful tools ever devised for mechanics' use. It is a complete substitute for a whole set of common try squares, and is one of the best gauges made for transferring exact measurements or laying out work. It is also convenient for a depth gauge or to square in a mortise. For a miter it is perfect, while with the auxiliary center head it forms a centering square, both inside and outside, which for convenience and accuracy has no equal. The blades are hardened and graduated with heavy figures, reading both ways.

Prices.

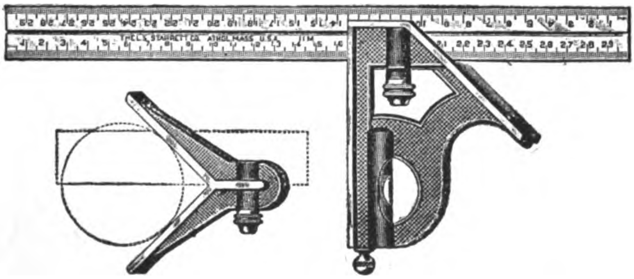
4-inch, without center head or level		$0.75
6-inch, with center head	$1.50, without,	1.00
9-inch, with center head	1.75, without,	1.25
12-inch, with center head	2.00, without,	1.50
18-inch, with center head	2.75, without,	2.25
24-inch, with center head	3.25, without,	2.75

The 6, 9, 12, 18, and 24 inch have levels (in their stocks) and center heads, and will be sent complete unless otherwise ordered. The 18 and 24 inch have same stock and center head as 12-inch.

The blades are graduated in No. 4, No. 1, No. 2, No. 7, and No. 16 graduations. Those of No. 4 graduation being most used, will be sent unless otherwise ordered.

Starrett Patent Combination Square No. 11m.

With hardened blade.



The same as No. 11, except that the blade is graduated in millimeters and ½ millimeters.

Prices.

10 cm., without center head or level		$0.75
15 cm., with center head	$1.50, without,	1.00
20 cm., with center head	1.75, without,	1.25
30 cm., with center head	2.00, without,	1.50
50 cm., with center head	2.75, without,	2.25
60 cm., with center head	3.25, without,	2.75

Prices of separate parts of squares No. 11, No. 11M, and No. 23.

	Scale.	Stock.	Center head.
4-inch or 10 cm	$0.50	$0.50	
6-inch or 15 cm	.75	.50	$0.50
9-inch or 20 cm	1.00	.50	.50
12-inch or 30 cm	1.25	.75	.50
18-inch or 50 cm	2.00	.75	.50
24-inch or 60 cm	2.50	.75	.50

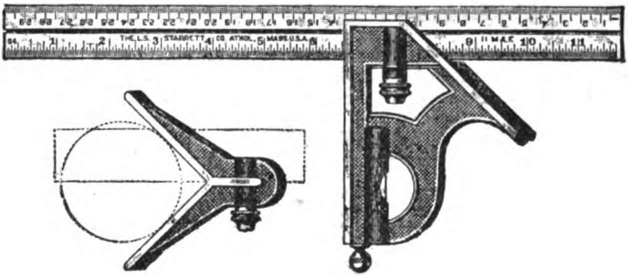
Scribers........................ 10 cents each.

EXCELLENT EXAMPLE OF SAME TOOL WORKING TO BOTH METRIC AND CUSTOMARY (INCH) MEASURES.

[Note price is same as for metric or customary alone.]

Starrett Patent Combination Square No. 11M&E.

With hardened blade.



The same as No. 11, except that the blades are graduated in metric and English, as follows: One side graduated in ½ millimeters and 32ds, the reverse side graduated in millimeters and 64ths.

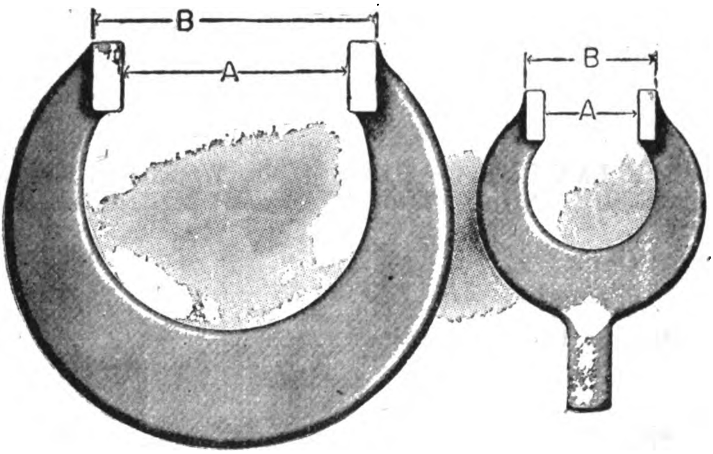
Prices.

10 cm., without center head or level			$0.75
15 cm., with center head	$1.50;	without,	1.00
20 cm., with center head	1.75;	without,	1.25
30 cm., with center head	2.00;	without,	1.50
50 cm., with center head	2.75;	without,	2.25
60 cm., with center head	3.25;	without,	2.75

Sent with center head unless otherwise ordered.

UNFINISHED SNAP GAUGE BLANKS, WHICH CAN BE FINISHED IN THE SHOP EITHER INCH OR METRIC SIZES WITHOUT EXTRA COST.

B. & S. Drop-Forged Steel Snap Gauge Blanks.



These gauge blanks are drop-forged from the best tool steel and carefully annealed. The allowance for finish on these blanks is so arranged that all intermediate sizes between those listed can be secured. Sizes 3 1/8″, 3 1/2″, and 4″ are without handles.

Price list.

Size.	Forging size.		Price, each.	Size.
	A.	B.		
1/4″	3/16″	1/2″	$0.15	1/4″
3/8″	5/16″	5/8″	.20	3/8″
1/2″	15/32″	3/4″	.20	1/2″
5/8″	9/16″	7/8″	.20	5/8″
3/4″	11/16″	1 3/32″	.25	3/4″
7/8″	13/16″	1 3/16″	.30	7/8″
1″	29/32″	1 5/16″	.35	1″
1 1/8″	1 3/32″	1 7/16″	.40	1 1/8″
1 1/4″	1 7/32″	1 5/8″	.45	1 1/4″
1 3/8″	1 5/16″	1 3/4″	.50	1 3/8″
1 1/2″	1 7/16″	1 7/8″	.55	1 1/2″
1 5/8″	1 9/16″	2″	.60	1 5/8″
1 3/4″	1 11/16″	2 1/8″	.65	1 3/4″
1 7/8″	1 27/32″	2 1/4″	.70	1 7/8″
2″	1 31/32″	2 3/8″	.75	2″
2 1/8″	2 1/16″	2 1/2″	.80	2 1/8″
2 1/4″	2 5/32″	2 23/32″	.90	2 1/4″
2 3/8″	2 11/32″	3 1/32″	1.00	2 3/8″
2 3/4″	2 11/16″	3 3/8″	1.20	2 3/4″
3 1/8″	3 3/32″	3 27/32″	1.40	3 1/8″
3 1/2″	3 15/32″	4 3/16″	1.60	3 1/2″
4″	3 7/8″	4 21/32″	1.75	4″

SHOWING FULL LINE OF TWIST DRILLS IN METRIC SIZES.

[From a domestic catalogue.]

PATENT CONSTANT ANGLE TWIST DRILLS.

For screw or chucking machines, with holes through solid metal for lubricant.

With shanks 1¼ inches diameter, 3 inches long.

Diameter.	Price each.			Diameter.	Price each.		
	Whole length, 8½ inches; twist cut, 4½ inches.	Whole length, 10½ inches; twist cut, 6½ inches.	Whole length, 13 inches; twist cut, 9 inches.		Whole length, 8½ inches; twist cut, 4½ inches.	Whole length, 10½ inches; twist cut, 6½ inches.	Whole length, 13 inches; twist cut, 9 inches.
Inches.				*Inches.*			
31/64–1/2	$5.80	$6.80	$7.80	57/64–29/32	5.90	6.80	7.60
33/64–17/32	5.80	6.80	7.80	59/64–15/16	5.90	6.80	7.70
35/64–9/16	5.80	6.70	7.70	61/64–31/32	6.00	6.90	7.80
37/64–19/32	5.70	6.70	7.70	63/64–1	6.00	6.90	7.90
39/64–5/8	5.70	6.70	7.60	1 1/64–1 1/32	6.10	7.00	8.00
41/64–21/32	5.70	6.60	7.60	1 3/64–1 1/16	6.20	7.10	8.20
43/64–11/16	5.60	6.60	7.50	1 5/64–1 3/32	6.30	7.20	8.40
45/64–23/32	5.60	6.50	7.50	1 7/64–1 1/8	6.40	7.40	8.50
47/64–3/4	5.60	6.50	7.40	1 9/64–1 5/32	6.50	7.50	8.60
49/64–25/32	5.70	6.60	7.40	1 11/64–1 3/16	6.60	7.60	8.80
51/64–13/16	5.70	6.60	7.50	1 13/64–1 7/32	6.70	7.80	8.90
53/64–27/32	5.80	6.70	7.50	1 15/64–1 1/4	6.80	7.90	9.00
55/64–7/8	5.80	6.70	7.60				

With straight shanks.

MILLIMETER SIZES.

Diameter.	Whole length, 216 mm.	Whole length, 267 mm.	Whole length, 330 mm.	Whole length, 216 mm.	Whole length, 267 mm.	Whole length, 330 mm.
	Price each.			Twist cut.		
Mm.				*Mm.*	*Mm.*	*Mm.*
38	$9.20	$10.50	$11.90	127	171	229
38½	9.60	10.90	12.10	121	165	222
39	9.60	10.90	12.10	121	165	222
39½	9.80	11.00	12.20	121	165	222
40	9.80	11.00	12.20	121	165	222
40½	10.00	11.20	12.40	121	165	222
41	10.00	11.20	12.40	121	165	222
41½	10.20	11.40	12.50	121	165	222
42	10.20	11.40	12.50	121	165	222
42½	10.40	11.60	12.90	121	165	222
43	10.40	11.60	12.90	121	165	222
43½	10.50	11.80	13.00	121	165	222
44	10.50	11.80	13.00	121	165	222
44½	10.70	12.00	13.20	121	165	222
45	10.70	12.00	13.20	121	165	222
45½	10.90	12.20	13.40	121	165	222
46	10.90	12.20	13.40	121	165	222
46½	11.20	12.50	13.70	121	165	222
47	11.20	12.50	13.70	121	165	222
47½	11.40	12.70	14.00	121	165	222
48	11.40	12.70	14.00	121	165	222
48½	11.60	12.90	14.20	121	165	222
49	11.60	12.90	14.20	121	165	222
49½	11.90	13.10	14.40	121	165	222
50	11.90	13.10	14.40	121	165	222

Drills 38½ mm. diameter and larger, 216 mm. long, have shanks 38 mm. diameter, 76 mm. long.

Drills 38½ mm. diameter and larger, 267 mm. long, have shanks 38 mm. diameter, 83 mm. long.

Drills 38½ mm. diameter and larger, 330 mm. long, have shanks 38 mm. diameter, 89 mm. long.

METRIC SIZES OF DRILLS (1114) AT THE SAME PRICES AS INCH SIZES (114).

No. 1114.—Millimeter Size Bit Stock Drills.

Diameter.	Price per dozen.	Price each.	Length over all.	Diameter.	Price per dozen.	Price each.	Length over all.
m/m			*m/m*	*m/m*			*m/m*
1	$1.40	$0.13	76	13½	$12.70	$1.10	184
1½	1.50	.14	86	14	14.35	1.20	191
2	1.65	.16	96	14½	14.95	1.25	191
2½	1.90	.18	101	15	15.55	1.30	191
3	2.10	.20	101	15½	15.85	1.35	191
3½	2.35	.22	105	16	16.15	1.35	191
4	2.60	.24	108	16½	17.35	1.45	191
4½	3.10	.29	111	17	17.95	1.50	191
5	3.35	.31	116	17½	18.55	1.55	191
5½	3.60	.33	121	18	19.15	1.60	191
6	3.85	.36	124	18½	19.45	1.65	191
6½	4.10	.38	127	19	19.75	1.65	191
7	4.70	.43	132	19½	20.35	1.70	191
7½	5.05	.46	135	20	20.95	1.75	191
8	5.40	.48	140	20½	21.55	1.80	191
8½	6.30	.54	144	21	22.75	1.90	191
9	6.75	.58	149	21½	23.05	1.95	191
9½	7.20	.62	152	22	23.35	1.95	191
10	8.00	.68	155	22½	23.95	2.00	191
10½	8.40	.72	160	23	24.55	2.05	191
11	8.80	.75	165	23½	25.15	2.10	191
11½	9.60	.82	168	24	25.75	2.15	191
12	9.95	.85	171	24½	26.95	2.25	191
12½	10.30	.87	176	25	28.15	2.35	191
13	11.00	.92	179				

No. 114.—Bit Stock Drills for Metal or Wood.

Diameter.	Price per dozen.	Price each.	Length over all.	Diameter.	Price per dozen.	Price each.	Length over all.
Inches.			*Inches.*	*Inches.*			*Inches.*
1/16	$1.50	$0.14	3 9/16	15/32	$9.60	$0.82	6¾
5/64	1.60	.15	4	½	10.30	.87	7
3/32	1.65	.16	4	17/32	11.00	.92	7¼
7/64	1.90	.18	4	9/16	14.35	1.20	7½
⅛	2.10	.20	4	19/32	15.55	1.30	7½
9/64	2.35	.22	4⅛	⅝	16.15	1.35	7½
5/32	2.60	.24	4¼	21/32	17.35	1.45	7½
11/64	2.85	.26	4⅜	11/16	17.95	1.50	7½
3/16	3.10	.29	4½	23/32	19.15	1.60	7½
13/64	3.35	.31	4⅝	¾	19.75	1.65	7½
7/32	3.60	.33	4¾	25/32	20.95	1.75	7½
15/64	3.85	.36	5	13/16	21.55	1.80	7½
¼	4.10	.38	5	27/32	22.75	1.90	7½
17/64	4.40	.41	5⅛	⅞	23.35	1.95	7½
9/32	4.70	.43	5¼	29/32	24.55	2.05	7½
19/64	5.05	.46	5⅜	15/16	25.75	2.15	7½
5/16	5.40	.48	5½	31/32	26.95	2.25	7½
21/64	5.85	.51	5⅝	1	28.15	2.35	7½
11/32	6.30	.54	5¾	1 1/16	35.95	3.00	7½
⅜	7.20	.62	6	1⅛	40.15	3.35	7½
13/32	8.00	.68	6¼	1 3/16	43.15	3.60	7½
7/16	8.80	.75	6½	1¼	44.95	3.75	7½

A TELEGRAPH CODE FOR ORDERING METRIC SIZES OF DRILLS.

[From a well-known twist drill catalogue.]

Code—Millimeter sizes.

Size.	Code.	Size.	Code.	Size.	Code.
.5	Abranchia.	5.4	Absorptive.	11.5	Acarus.
.6	Abratery.	5.5	Abstaffo.	12.	Accordable.
.7	Abrave.	5.6	Abstemious.	12.5	According.
.8	Abraxito.	5.7	Absterge.	13.	Accumbent.
.9	Abregest.	5.8	Absterse.	13.5	Acetal.
1.	Abreption.	5.9	Abstersion.	14.	Acheron.
1.1	Abrevey.	6.	Abstinent.	14.5	Acmite.
1.2	Abridged.	6.1	Abstirbo.	15.	Acouchy.
1.3	Abridgers.	6.2	Abstorted.	15.5	Acquiesce.
1.4	Abrifle.	6.3	Abstracted.	16.	Acquiring.
1.5	Abrime.	6.4	Abstractly.	16.5	Acquisitor.
1.6	Abroaches.	6.5	Abstratum.	17.	Acrostic.
1.7	Abrogable.	6.6	Abstrila.	17.5	Actuaryte.
1.8	Abroma.	6.7	Abstrop.	18.	Aculeons.
1.9	Abrooding.	6.8	Abstrusity.	18.5	Acuminate.
2.	Abruption.	6.9	Absuatum.	19.	Acutely.
2.1	Abrural.	7.	Absume.	19.5	Adagio.
2.2	Abrus.	7.1	Absuper.	20.	Adalid.
2.3	Abrustate.	7.2	Absurdity.	20.5	Adamite.
2.4	Abscess.	7.3	Absurdly.	21.	Addendum.
2.5	Abscission.	7.4	Absuress.	21.5	Addicted.
2.6	Absconder.	7.5	Abtisco.	22.	Additament.
2.7	Absent.	7.6	Abubus.	22.5	Additory.
2.8	Absintat.	7.7	Abudena.	23.	Addlings.
2.9	Absippo.	7.8	Abuffa.	23.5	Adenoid.
3.	Absisting.	7.9	Abugas.	24.	Adequately.
3.1	Absolo.	8.	Abugetry.	24.5	Adherent.
3.2	Absolutely.	8.1	Abugmot.	25.	Adhibit.
3.3	Absolutepo.	8.2	Abugtela.	25.5	Adject.
3.4	Absolutest.	8.3	Abuitum.	26.	Adjoining.
3.5	Absolutid.	8.4	Abula.	26.5	Adjunct.
3.6	Absolutist.	8.5	Abundance.	27.	Adminos.
3.7	Absolutory.	8.6	Aburius.	27.5	Admirabunt.
3.8	Absolvabum.	8.7	Abusage.	28.	Admiralty.
3.9	Absolvata.	8.8	Abuseful.	28.5	Admirata.
4.	Absolvers.	8.9	Abusers.	29.	Adolescent.
4.1	Absomex.	9.	Abusing.	29.5	Adolphead.
4.2	Absomites.	9.1	Abusita.	30.	Adonic.
4.3	Absona.	9.2	Abusively.	30.5	Adoptive.
4.4	Absonous.	9.3	Abusocus.	31.	Adrialt.
4.5	Absonoyed.	9.4	Abusy.	31.5	Adrianus.
4.6	Absoplay.	9.5	Abusydos.	32.	Adscript.
4.7	Absorat.	9.6	Abuttess.	32.5	Adulterant.
4.8	Absorbable.	9.7	Abutely.	33.	Adventist.
4.9	Absorbalo.	9.8	Abuthal.	33.5	Adverbial.
5.	Absorbasta.	9.9	Abutmenes.	34.	Advocate.
5.1	Absorbefo.	10.	Abuttal.	34.5	Affa.
5.2	Absornat.	10.5	Acacy.	35.	Affecting.
5.3	Absorpt.	11.	Acadera.	35.5	Afferent.

Code—Millimeter sizes—Continued.

Size.	Code.	Size.	Code.	Size.	Code
36.	Affiche.	51.5	Ailure.	67.	Algaman.
36.5	Affinage.	52.	Airborn.	67.5	Algerilial.
37.	Affirmer.	52.5	Airhill.	68.	Algerless.
37.5	Afflatus.	53.	Airling.	68.5	Alhall.
38.	Affluency.	53.5	Airshot.	69.	Alhambert.
38.5	Afforage.	54.	Aisled.	69.5	Alibone.
39.	Afforest.	54.5	Ajack.	70.	Aliding.
39.5	Affret.	55.	Ajarax.	70.5	Alienate.
40.	Affrighter.	55.5	Ajuging.	71.	Aligned.
40.5	Affusible.	56.	Akletta.	71.5	Alkaline.
41.	Afloat.	56.5	Alacade.	72.	Allegate.
41.5	Afreet.	57.	Alalite.	72.5	Allegating.
42.	Afric.	57.5	Alamine.	73.	Allegged.
42.5	Agatesci.	58.	Alary.	73.5	Allegrotes.
43.	Agathy.	58.5	Alaster.	74.	Allenting.
43.5	Agect.	59.	Albanian.	74.5	Alleyed.
44.	Agedena.	59.5	Albed.	75.	Alloper.
44.5	Agency.	60.	Albescent.	75.5	Alloying.
45.	Agidae.	60.5	Albinister.	76.	Allumen.
45.5	Agileness.	61.	Alborak.	77.	Almelite.
46.	Agin.	61.5	Alcat.	78.	Almoose.
46.5	Agistment.	62.	Alcoran.	79.	Alnathy.
47.	Aglaia.	62.5	Alder.	80.	Aloha.
47.5	Agnate.	63.	Aldermanic.	81.	Alpaca.
48.	Agnomen.	63.5	Aldoon.	82.	Alpetre.
48.5	Agonize.	64.	Aleak.	83.	Already.
49.	Agrarian.	64.5	Aleman.	84.	Alsoran.
49.5	Aground.	65.	Aleroom.	85.	Altogether.
50.	Aguetree.	65.5	Aless.	90.	Amassive.
50.5	Ahold.	66.	Alfoy.	95.	Ametrical.
51.	Aikraw.	66.5	Alfster.	100.	Amorning.

Code—Number sizes.

Size.	Code.	Size.	Code.	Size.	Code.
000	Absteady.	15	Absonult.	32	Absist.
00	Abstivial.	16	Absonoy.	33	Absinthis.
0	Abstides.	17	Absonatus.	34	Absinthian.
1	Abstergent.	18	Absonage.	35	Absenters.
2	Abstention.	19	Absomul.	36	Absentator.
3	Abstade.	20	Absomalia.	37	Absence.
4	Absorption.	21	Absolvitor.	38	Abscondent.
5	Absoros.	22	Absolved.	39	Abscond.
6	Absorbilg.	23	Absolvax.	40	Abscisses.
7	Absorbegg.	24	Absolvasti.	41	Abscind.
8	Absorbed.	25	Absolvabo.	42	Abrye.
9	Absorbarl.	26	Absolutus.	43	Abrusor.
10	Absorbams.	27	Absolutiva.	44	Abruro.
11	Absorbak.	28	Absolutigo.	45	Abruptness.
12	Absorbagum.	29	Absolutex.	46	Abruptly.
13	Absoquil.	30	Absolutem.	47	Abrupting.
14	Absopris.	31	Absitum.	48	Abrooks.

NEW TYPE OF BOILER DESCRIBED IN METRIC UNITS IN GERMAN AND FRENCH AND IN CUSTOMARY UNITS IN ENGLISH IN THREE PARALLEL COLUMNS.

Die Abmessungen und Gewichte (laut Wiegebuch) des Barkassenkessels stellen sich wie folgt:

Heizfläche H	13. 25 qm.
Rostfläche R	0. 42 qm.
H:R	31
Ueberdruck	10 at m.
Maschinenleistung N^1...normal	32. 5 PS^1.
Schiffsgeschwindigkeit	7. 5 Knoten.
nacktes Kesselgewicht G	1130 kg.
nacktes Kesselgewicht mit Wasser=G_1	1680 kg.
G_1 Armatur Rauchtang=G_2	2850 kg.
$\frac{G_2}{H}$	215 kg.
$\frac{G_2}{N_i}$	89 kg.

Die Verwendung eines Schütte-Kessels bedeutet also auch in diesem Lalle eine weitere Ersparnis gegenüber einem Zylinderkessel.

Nachdem sich dieser neue, wesentlich verbesserte Kesseltyp im Betribe ein Jahr lang vorzüglich bewährt hatte, wurden die ersten, ovalen Kessel der Jacht "Lensahn" gelegentlich deren Verlängerung um 5.5 m. durch neue ersetzt. Die Konstruktion dieser Kessel veranschaulichen die Fig. 4 u. 5.

The measurements and weights (as per weight-book) of this launch-boiler are as follows:

Heating surface H	142. 62 sq. f.
Grate surface R	4. 52 sq. f.
R:H	31
Over-pressure	142 lbs. p. sq. i.
Normal engine power	32. 5 J. H. P.
Speed of the launch	7. 5 knots.
Weight of naked boiler G	1130 kg.
Weight of naked boiler with water G_1	1680 kg.
G_1+fittings+uptake G_2=	2850 kg.
$\frac{G_2}{H}$=	215 kg.
$\frac{G_2}{\text{J. R. P.}}$=	89 kg.

The employment of a Schütte boiler means also in this case a further economy compared with a cylindrical boiler.

After this newly and greatly improved style of boiler had been in use for a year and had proved itself to be excellent it was substituted for the first oval boilers of the yacht "Lensahn" on the occasion of her lengthening of 18 feet.

The construction of this boiler is to be seen in Figs. 4 and 5.

Les mesures et le poids (d'après le livre de poids) de la chaudière de la chaloupe sont les suivants:

Surface de chauffe H	13. 25 m^2.
Surface de grille R	0. 42 m^2.
H:R	31.
Pression trop élevée	13 kg. qcm.
Force de la machine	32. 5 ch. i.
Vélocité du bateau	7. 5 noeuds.
Poids de la chaudière nue G=	1130 kg.
Poids de la chaudière remplie d'eau G_1=	1980 kg.
G_1+garniture+culotte de cheminée G_2=	2850 kg.
$\frac{G_2}{H}$=	215 kg.
$\frac{G_2}{\text{Ch. indiqués}}$	89 kg.

L'emploi de la chaudière Schütte est, dans ce cas aussi, une économie de plus sur la chaudière cylindrique.

Ce type de chaudières neuves, sensiblement amélioré, ayant fait ses preuves d'excellente qualité pendant son année d'activité, fut substitué aux premières chaudières ovales du Yacht Lensahn; on profita de fait que le yacht devait être allongé de 5.5 m. pour faire le changement. Les fig. 4 et 5 indiquent la construction de ces chaudières.

UNITED STATES CATALOGUE SHOWING USE OF METRIC SYSTEM IN PRICE LISTS OF CHEMICALS.

Chemicals, solutions, and materials not enumerated in these lists will be furnished of a quality conforming to all requirements of laboratory work at moderate prices.

Eberbach & Son's Price List for Chemicals.

[25 grm.=⅞ oz. 100 grm.=3½ oz. ½ ko.=1⅒ lb.]

Note.—The chemicals listed herein are carried in stock in bottles of 25, 100, and 500 grammes or of the sizes corresponding with the quantities priced in the list, and there will be no delay in filling orders when made in these quantities. If other than above-mentioned packages are ordered, proportionally higher prices will be charged to cover difference in containers and handling.

Chemicals and reagents.

	25 grm.	100 grm.	½ ko.
Acetone, B. 562–564° C	$0.15	$0.30	$1.00
Acetylchloride	.35	1.00	
Acid acetic-glacial, S. G. 10.58=99%		.25	.60
Acid acetic-glacial, S. G. 1.064=96%		.20	.45
Acid acetic, S. G. 1.060=50%		.15	.30
Acid acetic, S. G. 1.041=30% R		.15	.25
Acid acetic-anhydride	.30	.80	
Acid arsenic anhydride	.15	.35	1.30
Acid arsenious. Arsenic, pure		.10	.15
Acid arsenious, lump		.15	.35
Acid arsenious, powder		.15	.45
Acid boric		.15	.45
Acid carbolic, phenylic		.25	.85
Acid carminic	2.50		
Acid chloric, S. G. 1.120	.25	.60	1.75
Acid chromic-cryst. Sulfuric acid free	.25	.60	2.00
Acid chromic-solution		.20	.60
Acid citric-cryst		.20	.60
Acid citric-C. P	.15	.30	1.00
Acid formic, S. G. 1.220	.40	1.25	5.00
Acid formic, S. G. 1.120	.15	.30	1.00
Acid gallic, pure		.25	.90
Acid gallic, C. P	.25	.65	2.50

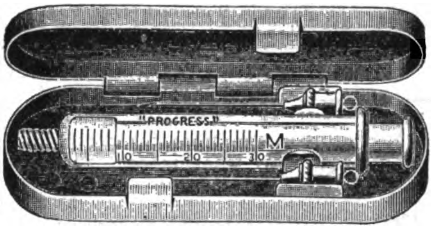
Prices include containers.

NOTE USE OF BOTH METRIC (c. c.) AND CUSTOMARY (MINIMS) ON THE SCALE OF A DOMESTIC HYPODERMIC SYRINGE.

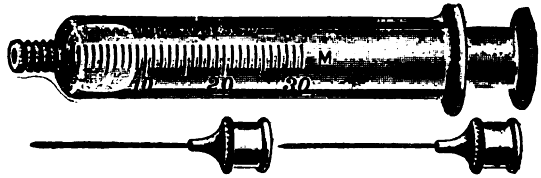
DRUGGISTS' SUNDRIES.

PROGRESS ASEPTIC HYPODERMIC SYRINGES.

Barrel and piston of glass, with asbestos packing. Needles only of metal. Can be easily taken apart and thoroughly sterilized.



Progress syringe in nickel-plated case.

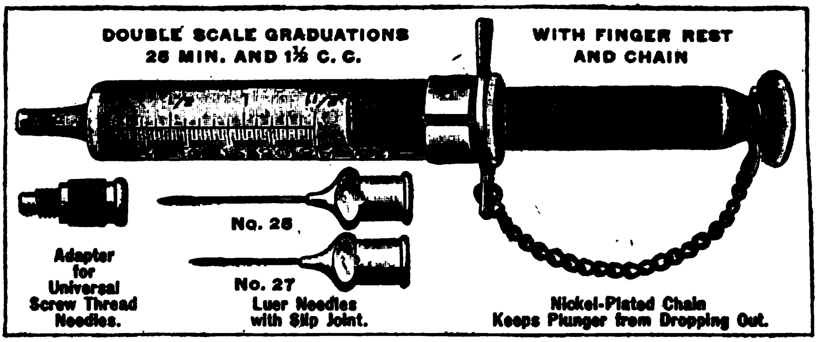


		Per dozen.
No. 1.	**In paper box, with two needles**	**$12.00**
No. 2.	**In nickel-plated case, with two needles**	**15.00**

Needles only, each dozen in celluloid case, per dozen, $1.50; per gross, $15.00. These needles are not sold in lots less than one dozen.

LUER HYPODERMIC SYRINGES.

Glass barrel with ground in glass piston. No packing or washers. Can be easily and thoroughly sterilized.


DOUBLE SCALE GRADUATIONS
25 MIN. AND 1½ C. C.
WITH FINGER REST
AND CHAIN
No. 25
No. 27
Adapter for Universal Screw Thread Needles.
Luer Needles with Slip Joint.
Nickel-Plated Chain Keeps Plunger from Dropping Out.

The above illustrations are actual size.

The glass is of extra tensile strength and well annealed. Each plunger is carefully ground to fit its own barrel and is not interchangeable.

The needles are standard gauge to slip on the syringe end, but with each complete syringe outfit we also furnish an adapter which permits using our regular universal screw-thread needles.

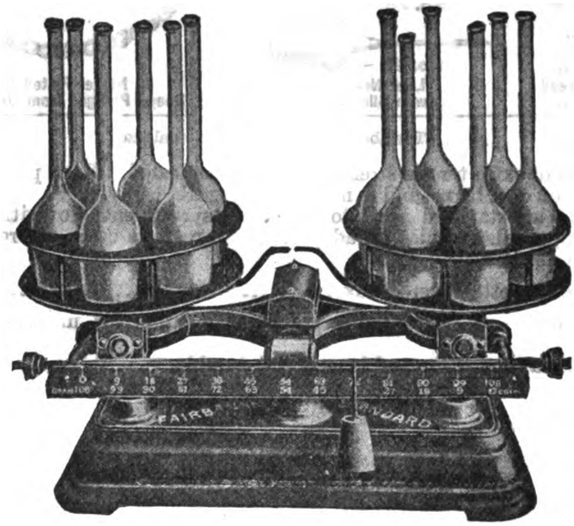
	Per dozen.
No. 1. In leatherette-covered box	$15.00

Complete with two Luer needles and metal adapter for universal screw-thread needles.

The box has a hinged top and is neat and durable.

METRIC BALANCES ADVERTISED FOR USE IN MILK AND CREAM TESTING BY DAIRY AUTHORITIES.

CREAM TEST SCALES.



No. 630—12-bottle.

The weighing of cream samples, instead of measuring with a pipette, is recognized by dairying authorities as a much more accurate and satisfactory method.

To meet the demand for individual farmers and small creameries, as well as the larger establishments, we have designed three sizes of scales, viz, 1-bottle, 6-bottle, and 12-bottle, the latter being illustrated above.

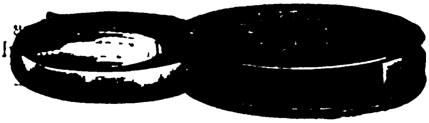
The 12-bottle has beam with two rows of graduations, the upper edge having 9 gram notches and figured from 0 to 108 grams by 9 grams; the lower row with reverse graduations 108 to 0 by 9 grams. This scale is galvanized and with agate bearings.

	Bottle.	Price.
No. 628	1	$4.50
No. 629	6	7.00
No. 630	12	12.00

METRIC SIZES OF MICROSCOPE ACCESSORIES.

[United States catalogue.]

MAGNIFIER—MEASURES.



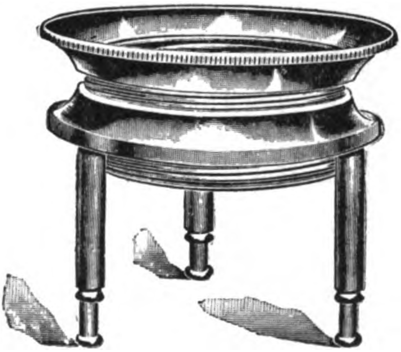
No. 68.

Magnifiers, hand.

The mountings are vulcanite, which is of light weight, neat, and permanent; the lenses are accurately ground.

Telegraphic code.	Catalogue number.		Price.
Paef........	68	With 37 mm. lens in oval mounting ....each..	$50
Pamg.......	69	With 30 and 37 mm. lenses in oval mounting, each.	80
Peyaro......	121	With 18, 21, and 25 mm. lenses in bellows-shaped mounting, each.	80

No. Q R.



Magnifier, mounted on tripod.

Lens adjustable for focus.

Qacc........	Q R	Each..	50

No. 9869.

Measuring cones.

For measuring circular apertures, tubing, etc. Tenths of a millimeter may be read. Of steel, nicked plated.

			A.	B.	C.
Vefe........	9869	Length of graduations, mm.........	1–15	15–30	30–45
		Each............................	$1.50	2.00	2.50

Measuring tapes.

Graduated on one side in sixteenths of an inch to 36 inches and in millimeters and centimeters to one meter on the other. In nickel-plated case with spring.

Veffo.......	9876	Steel.................................each..	$1.25
Vefgab......	9878	Linen.................................each..	.50

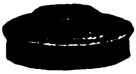
BOTH METRIC AND CUSTOMARY MEASURES GIVEN FOR LENSES IN A MICROSCOPE CATALOGUE.

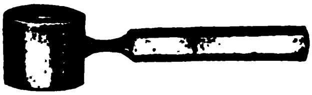
No. 240 Tripod Dissecting Magnifier.

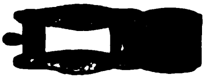
This dissecting magnifier gives a large, clear field and magnification sufficient for elementary work. The lens is focused by screwing it up or down in its frame.

Price, each.. $0.35

Triple Aplanatic Magnifiers.



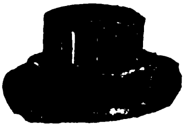


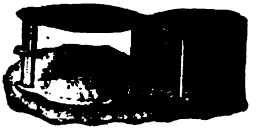


These lenses are remarkable for their great working distance and their unusually large, flat field. They are perfectly achromatic and free from distortion.

Telegraphic code.	Catalogue No.	Magnification.	Focal distance.		Working distance.	Diameter real field.	Mount.	Price.
			Millimeters.	Inches, approximate.				
					Mm.	*Mm.*		
Tofivsix.................	256	6x	41.6	1.6	36.8	30	A. For dissecting microscopes.	$3.50
Tofivate.................	258	9x	27.8	1.1	24.5	20		3.50
Tosixo.................	260	12x	20.8	0.8	18.4	15		3.50
Tosixto.................	262	18x	13.9	0.5	12.1	10		3.50
Tosixfor.................	264	24x	10.4	0.4	9.2	7.5		3.50
Tosixsix.................	266	6x	41.6	1.6	36.8	30	B. Hexagon handle.	3.50
Tosixate.................	268	9x	27.8	1.1	24.5	20		3.50
Tosevo.................	270	12x	20.8	0.8	18.4	15		3.50
Tosevto.................	272	18x	13.9	0.5	12.1	10		3.50
Tosevfor.................	274	24x	10.4	0.4	9.2	7.5		3.50
Tosevsix.................	276	6x	41.6	1.6	36.8	30	C. Folding case...	3.50
Tosevate.................	278	9x	27.8	1.1	24.5	20		3.50
Toateo.................	280	12x	20.8	0.8	18.4	15		3.50
Toateto.................	282	18x	13.9	0.5	12.1	10		3.50
Toatefor.................	284	24x	10.4	0.4	9.2	7.5		3.50

The New Spencer Veraplanats.

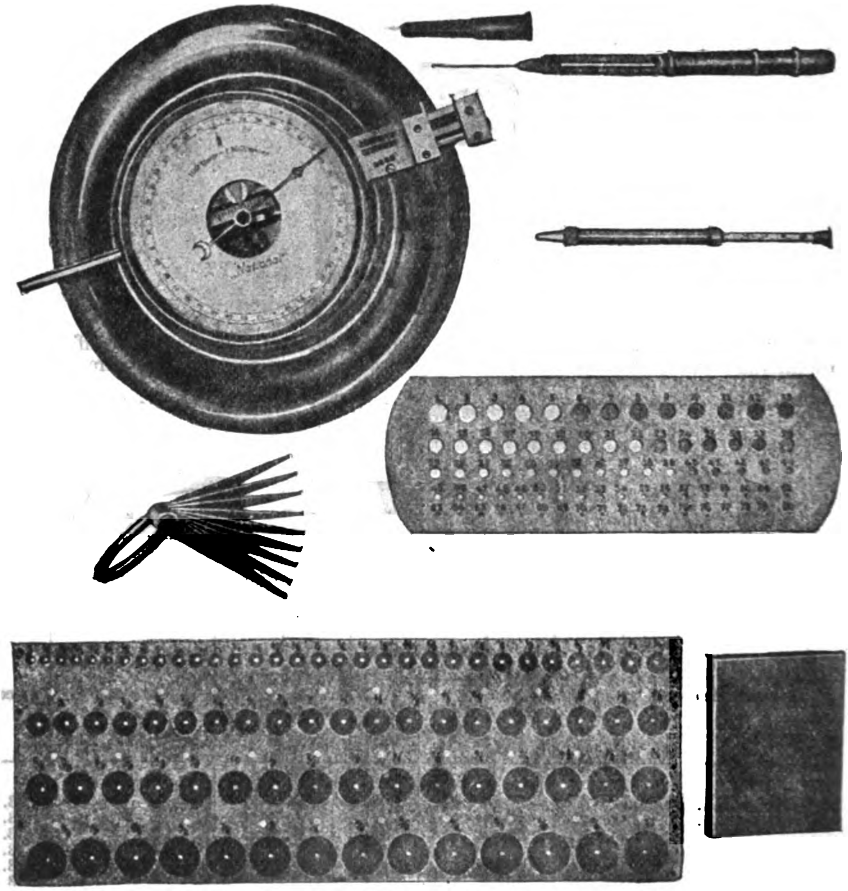




These new magnifiers are the result of computation and experimentation to obtain the highest possible results so far as the most critical definition, large, clear, flat fields and long working distances are concerned. We heartily recommend them to those who must have the best.

METRIC JEWEL GAUGES AND METRIC WHEEL GAUGES FOR WATCHMAKERS, JEWELERS, AND OPTICIANS.

FOR WATCHMAKERS, JEWELERS, AND OPTICIANS.



Gauges, gold-testing stones, needles, etc.

2272A.	Standard jewel hole gauge, measures holes in one hundredths of millimeters, the standard used by all watch companies, each	$5.00
2272B.	German silver jewel hole gauge	2.50

The jewel hole is measured by placing it on the taper needle and pushing it down until it touches the end of the gauge, the index hand will then indicate exact size of hole.

No. 2293.	Gold testing needles, per set	$1.75
No. 2295.	Wheel gauge, in ½'s millimeter on both sides, 3 to 13 millimeters	$2.50
No. 2296.	Gold-testing stones, small	.30
No. 2297.	Gold-testing stones, medium	.40
No. 2298.	Gold-testing stones, large	.50
No. 2300.	Wire and pinion gauge with 70 holes	1.10
	Wire, 80 holes	1.40

Nickel plating, 25c extra.

Index.

Carver handles...... see Classification H
Carver sharpeners... see classification E
Grinders, lathe..... see classification L
Grindstones........ see classification S

64TH CONGRESS } SENATE { DOCUMENT
1st Session } { No. 242

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

MESSAGE FROM THE PRESIDENT OF THE UNITED STATES

TRANSMITTING

A LETTER FROM THE SECRETARY OF WAR SUBMITTING A REPORT OF BRIG. GEN. FRANK McINTYRE, CHIEF OF THE BUREAU OF INSULAR AFFAIRS, UPON HIS RECENT TRIP TO THE PHILIPPINE ISLANDS

JANUARY 12, 1916.—Read; referred to the Committee on the Philippines and ordered to be printed

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

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MESSAGE OF TRANSMITTAL.

To the Senate and House of Representatives:

I transmit herewith the report of Brig. Gen. Frank McIntyre, Chief of the Bureau of Insular Affairs, upon his recent trip to the Philippine Islands.

Inasmuch as the bill extending a greater measure of self-government to the Filipinos is now pending in Congress, it is recommended that this report be printed as a congressional document.

WOODROW WILSON.

The WHITE HOUSE,
January 12, 1916.

LETTER OF SUBMITTAL.

WAR DEPARTMENT,
Washington, January 10, 1916.

Mr. PRESIDENT:

In my last annual report I mentioned that Gen. Frank McIntyre, Chief of the Bureau of Insular Affairs, had just returned from an extended trip to the Philippine Islands, and that his report containing a recital of facts and actual conditions there would be shortly transmitted. The report I now submit herewith in duplicate, with the suggestion, inasmuch as the Philippine bill has been reported by the Senate Committee on the Philippines and is now the subject of debate in the Senate, that it be transmitted to Congress, with the recommendation that it be printed as a public document.

Draft of message of transmittal, in duplicate, for your signature, if you concur in this recommendation, is also submitted herewith.

Very sincerely,

LINDLEY M. GARRISON,
Secretary of War.

SPECIAL REPORT OF BRIG. GEN. FRANK McINTYRE, UNITED STATES ARMY, ON THE PHILIPPINE ISLANDS.

War Department,
Bureau of Insular Affairs,
Washington, December 1, 1915.

Sir: In compliance with your instructions, I sailed from San Francisco on July 3, last, to visit the Philippine Islands, and returning arrived in Washington on October 22, last.

I was in the Philippine Islands from July 30 to September 9, 1915. My itinerary in the islands is attached, marked "Appendix A."

I made every effort in Manila and at other points visited by me to ascertain the actual conditions of the Philippine government and of the Philippine people, and of the attitude of the people toward the government. I gave persons desiring to see me every opportunity to do so, and I am not aware that anyone who desired to see me was unable to do so.

I conversed freely with persons of every shade of opinion in the islands—Americans, Filipinos, and foreigners—and found that the people of the islands were well satisfied with the government, and there was every indication that the satisfaction was greater than it had been at any time in the past.

LAW AND ORDER.

There was no disorder in any part of the islands.

There was in those parts of the islands inhabited by the Moros a far better condition than could have been anticipated a few years ago by the most sanguine. The relation between the departmental government and the Moros was as close as the nature of the country inhabited by them permitted. The principal Moro chieftains within reach of the points visited by me came to see me and gave every indication of satisfaction with conditions existing in their territory. The peaceful conditions which have existed for a number of years among the wild people of Luzon have been continued, and these people are steadily progressing toward civilization.

THE PHILIPPINE CONSTABULARY.

It is impossible to omit from consideration in any reference to law and order the Philippine Constabulary. This consists at present of 316 officers and 4,864 men. The officers are in part Americans and in part Filipinos, the number of Filipinos being gradually increased.

The present condition of the constabulary is well described by Secretary Dickinson in the report which he made after his visit in 1910, which I quote as follows:

> This is a useful and effective body of men now consisting of 322 officers and 4,451 enlisted men operating from 138 stations. The commissioned officers are generally Americans, but a number of Filipinos are also officers, and the policy is to fill vacancies by their appointment as rapidly as they meet the requirements. They are maintained much more cheaply than our American soldiers or Philippine Scouts. Their pay is less, their outfit more economical, and they subsist upon the country, thus saving the enormous cost of transportation incident to supplying the army.
>
> Besides serving as a military force to keep order and suppress insurrection, they are very efficient as auxiliaries in sanitary work, especially during epidemics. Although they do not receive the same amount of training and military discipline which the scouts do, yet they are, looking especially to their availability for sanitary work, of greater utility than the scouts. * * *
>
> In your report to the President (Secretary Taft's report of 1908) you stated that when you were in the islands the native papers condemned the constabulary, but that during the two following years a change had taken place, and that nothing was more popular in the islands than the constabulary. I am happy to say that this popularity is unabated, and that the constabulary and its administration are well intrenched in the respect and confidence of the people. The men and the native noncommissioned officers take great pride in their organization. They are well set up, efficient, keen in their work, and would be an effective force in case of foreign invasion. They conciliate constantly the people toward the administration, are learning the English language and habits, and thus are the medium of wholesome influences upon their people.

Every word of commendation of this body in the foregoing is applicable to-day.

Although the constabulary is practically of the same strength as on Secretary Dickinson's visit in 1910, the improved condition in law and order is such as to enable this body to accomplish now the work in which it was at that time assisted by the use of Philippine Scouts. At present no Philippine Scouts are used to assist the constabulary in the maintenance of order.

In the annual appropriation act for the fiscal year 1908 the Philippine Commission included a provision by which the officers of the Army made available as chief and assistant chiefs of the constabulary might, as vacancies occurred, be replaced by civilians.

This has been continued in the law; it is unwise and should be repealed.

The maintenance of the high standards of the constabulary requires at least the full number of Army officers authorized.

This is said with a full appreciation of the excellent work of the constabulary officers. I know nowhere of men doing better or more efficient work than the young officers of the constabulary.

The municipal police in the islands are highly creditable bodies. I saw nothing that impressed me more than the truly wonderful improvement in the bearing and appearance of the police of the several municipalities.

It is only fair to say, in recognition of the excellent work of the several administrations in the islands, that the maintenance of law and order therein does not now require the presence of a single American soldier, and that the duty of such soldiers in the Philippine Islands is to-day in all respects identical with their duty in the United States in time of peace.

EDUCATION.

In so far as practicable, I visited the public and private schools. The school buildings were, in general, of durable material, well suited to their purposes and to the climate, and while there was a general feeling among the people that there was still a lack of room in the schools for the pupils who might attend, I became convinced that the present attendance can not be increased without an expenditure of money in excess of the resources of the islands, and that the school system can not be extended, even though the money were available, without calling in a large number of teachers from the United States. In other words, it appeared that the supply of suitable teachers in the Philippines was wholly in use in the schools as they are at present conducted and that any effort to increase the number of schools and teachers without obtaining a supply of teachers fróm the outside would result in the employment of persons as teachers who would be probably more harmful than beneficial.

The zeal for education that has been so often remarked by visitors to the Philippines is unabated. The willingness of the people of the islands to expend their money for schools is still marked.

There has been satisfactory progress in the schools, both in the number of buildings and teachers and in the number of pupils attending, but a material increase in the number of schools or the number of pupils would only be justified in case the number of teachers from the United States could be correspondingly increased.

I am convinced that any effort to economize in the number of competent American teachers is a mistake and that steady progress demands that the number of American teachers be not decreased from the maximum of the past five years.

This would not mean failure to employ such Filipino teachers as become available. A fair measure of progress would mean the employment of all available competent Filipino teachers.

THE ENGLISH LANGUAGE.

One of the difficult questions to answer definitely is that as to the progress of the English language among the people of the islands.

That the progress is great and that the English language is to-day more generally understood in the islands than any language in which there exists a general literature or in which any large part of the business of the world is conducted is undoubted. It would appear that the English language is more generally understood throughout the archipelago than the Spanish language. It is also true that a traveler in the islands can, with a knowledge of the English language only, communicate with people in all parts of the archipelago much more readily than can a native Filipino who speaks only his native dialect, and relatively few Filipinos have ever been able to speak a native dialect other than their own.

The doubtful point is as to the thousands of children who after a few years quit the schools to live and labor in households where the elders speak only the native dialect. Do they retain their English and progress in it, or do they gradually lose the little English they have acquired at the schools? I received quite positive answers to this question; they were not all alike, but the weight of opinion was favorable to progress. That there could remain among the observant with opportunities to judge an element of doubt indicates the necessity of action which would remove this question from the field of uncertainty. The immense majority of the children are of this class and if the result of teaching them English is simply to enable them with some personal effort to become literates in their native dialect there is a great waste of effort.

There is still discussed from time to time among intelligent persons interested in education the question whether it would not be better in the first two or three grades of the public schools to teach in the native dialect. One view is that in this way a child going to school would acquire more information in two or three years than where, as at present, a considerable part of his time is taken up in acquiring a foreign language.

The answer to this seems to be that while a child could accumulate more concrete information, the concrete information acquired by a child in two or three years at school is of itself of little value, and that what is of value is that the child acquires instruments which may lead to further knowledge if intelligently used. The native languages do not possess the literature which would be of use to a child in enlarging his knowledge of the world; thus the benefit gained in two or three years study in a native dialect would be limited to the concrete information thus acquired, as the child would be without possession of those tools which would open up other sources of information.

It would seem, therefore, to be the part of wisdom to continue, as at present, making English the language of instruction, thus giving the child a knowledge of a language which will enable him to continue acquiring knowledge from written books, even after leaving school.

The bureau of education now issues a number of publications. It is thought that none of these have the educational value that might be given to a weekly leaflet of "Current Events" published in plain, simple English distributed freely throughout the islands. This would stimulate the continued interest in English in those who have left the schools, and would, if intelligently edited, be of wide educational value.

If not too manifestly for that purpose, it might be of great assistance to the government in many fields.

FILIPINIZATION OF THE PUBLIC SERVICE.

In his special report to President Taft, made in 1910, Secretary Dickinson said:

> In your special report of 1908, under the heading "Civil service," you say:
>
> "Still in many of the bureaus the progress of Filipinos to the most responsible places is necessarily slow, and the proportion of them to be found in positions of high salaries is not as large as it ought to be in the near future. The winnowing-out process, however, is steadily reducing the American employees in the civil service."
>
> One of the demands most urgently brought to my attention was that the work of increasing the proportion of the Filipino employees is not being pressed, and that, especially in the higher salaries, there is discrimination against Filipino employees. The Filipinos bear the burden of government, and should, so far as

is consistent with proper administration and the maintenance of the present attitude of the United States in the government of the islands, be given a preference in employment.

* * * * * * *

The general question was taken up with the Governor General and the heads of departments and bureaus. It is the fixed policy of the administration to proceed as rapidly as the good of the service will permit in increasing the Filipino employees, and I am satisfied that there will be a hearty cooperation upon the part of all. The Governor General has always favored this course. * * *

I append as a part of my report a table, marked "Appendix G," showing, for the several years set out, the number of Americans and Filipinos employed in the various services therein mentioned.

Without a careful analysis of these tables one might get a false impression of the extent to which the government of the islands has been Filipinized during the period covered by them. They show the increase of Filipinos in the civil service of the islands, but it should be observed that in the period covered by these tables the number of Filipino members of the commission has been increased 33⅓ per cent, the number of judges of first instance by 100 per cent, and there has been created the Philippine Assembly, an elective body composed exclusively of Filipinos.

To-day four of the nine members of the Philippine Commission, which constitutes the upper house of the legislature, are Filipinos. The entire lower house is composed of Filipinos. In the executive departments the important portfolio of finance and justice is held by a Filipino. Three of the seven justices of the supreme court, including the chief justice thereof, are Filipinos, and 10 of the 20 judges of first instance are Filipinos, while practically all the lower judicial officers are Filipinos.

The policy in this regard, as set forth in the report of Mr. Taft in 1908 and of Mr. Dickinson in 1910, and which has been outlined in practically every official statement on this subject since the establishment of civil government in the Philippine Islands, has been steadily adhered to by the present Governor General. The change in the subordinate positions has been somewhat more rapid than it has averaged in the recent past. It has, however, been by no means radical. Filipinization has been marked by necessary conservatism in the higher positions in the government.

To illustrate this, the last paragraph in Secretary Dickinson's report of 1910 would read, if written to-day, as follows:

To-day 5 of the 9 members of the Philippine Commission, which constitute the upper house of the legislature, are Filipinos. The entire lower house is composed of Filipinos. In the executive departments the important portfolio of finance and justice is held by a Filipino. Three of the 7 justices of the supreme court, including the chief justice thereof, are Filipinos, and 22 of the 36 judges of first instance are Filipinos, while practically all the lower judicial officers are Filipinos.

The only change from 1910 is that 5 instead of 4 of the 9 members of the Philippine Commission are now Filipinos, the changes in the number of judges of first instance being the result of an increasing number of judges of first instance, as it will be noted that the number of American judges is greater than in 1910.

There has been one feature of Filipinization that is unfortunate. It seems to have been accepted that once a Filipino has filled an office it would be a step backward thereafter to appoint an American to that position. This is unwise. The conditions required in an office change with progress. Circumstances that make the appointment of a Filipino to a position advisable may change. The appointment of an American under these circumstances would not be an admission of error. However, if error has been made in this regard, it should be corrected. It would be particularly fortunate if this unwritten law could be departed from by this insular administration, which has in so marked a degree the confidence of the Filipino people that it could make such a change without arousing a feeling that it was a backward step.

Certain other features of Filipinization are referred to under the head, "The civil service."

THE CIVIL SERVICE.

From its organization the Philippine government has striven to establish an efficient civil service based upon merit. The progress of the service from its origin is well and fully set forth in the annual reports of the bureau of civil service.

I found the civil service of the government efficient and the civil-service law and regulations being strictly enforced. I found, however, among the American employees in the civil service a degree of unrest, to explain which requires a review of certain conditions affecting Americans in that service.

In organizing the central government it was at first difficult to utilize a large number of Filipinos, for the reason that they were lacking in knowledge of American methods of administration and were ignorant of the English language. Salaries were fixed having in mind, not the employment of Filipinos living at their homes, but Americans who, in most instances, had to be brought from the United States or who contemplated returning to the United States. This necessarily made an expensive civil service in a country that could ill afford it.

Unfortunately, in fixing the salaries of government officers the commission failed to recognize the difference between Americans and Filipinos, and such Filipinos as were appointed to the more responsible positions under the government—and many were so appointed even in the early days—were given salaries altogether out of proportion to what they would command in nongovernmental occupations. It is probable that this was done, in the first instance, in a desire to attract the good will of Filipinos toward the government. It was early recognized as an error, but it is an error of the kind that is difficult to correct.

It was the announced policy of the commission to replace Americans in the Philippine civil service by Filipinos as rapidly as Filipinos competent to take the places could be developed. During this process it became apparent that if the schedule of salaries was to continue as established for American employees, when the service should be Filipinized the government of the Philippine Islands would be the most extravagant in the world. This fact was pointed out in so many words by Governor General Smith in 1907.

The correction of the difficulty was, in part, left to the judgment of bureau chiefs, and in certain cases it was corrected to the limit of their authority; that is, in the lower clerical positions. As American employees left such positions Filipinos undertaking the work were, in some cases, placed in a lower grade. While this still resulted in giving the Filipino a larger salary than his service would command in the open market, it had, when done, the effect of bringing about a slight reduction of expense.

This method of correcting the evil administratively exposed the bureau chief to the criticism that he was hostile to Filipinos in that he was adopting a policy toward them not sanctioned by legislative recognition of the widely different conditions affecting Americans and Filipinos in the Philippines. The bureau chief found also that replacing an American by a Filipino did not bring with it the reasonable economy that it should, while it generally brought increased labor in supervision or decreased efficiency or both.

The net result was neither fair progress in Filipinization nor economy. On the other hand, there was with governmental development normally an increase in expenditures for salaries which outran the increase in revenues.

In 1905, when the cost of the civil service of the government had become excessive, a board was convened to make recommendations looking to economy and efficiency, and, as a result of the report of this board, the number of employees in the civil service was reduced from 3,307 Americans and 4,023 Filipinos on January 1, 1905, to 2,616 Americans and 3,902 Filipinos on January 1, 1907.

With reference to the effect of this on the American personnel, the director of civil service in his report for 1906 said:

> It must be stated with regret that there has been no change in the tendency for the best qualified employees to resign after from two to five years of service. The method that was adopted in reorganizing the Government service and reducing the force has tended to instability in the service. Because of the impossibility of ascertaining until the appropriation act had passed the reductions that would be made in the force, in some bureaus new appointments were made up to the date of the reorganization, when employees of other bureaus that might have been transferred to the vacancies were dropped "on account of reduction of force." It is possible that many of the persons so dropped were, in fact, more or less inefficient. However, "reduction of force" was the reason given for the removals, and as a result there is at present a feeling of uncertainty among many efficient employees as to their tenure of office.

In 1913 the conditions which had required the calling of the board in 1905 had again arisen; once more the cost of this service was beyond the resources of the Government. There had been the natural growth of the civil service, the natural resistance of bureau chiefs to dispense with the services of faithful Americans in subordinate positions, and the natural tendency to replace efficient Americans on leaving by Americans, in part due to the fact that the replacing of an American by an untried and less efficient Filipino brought with it practically no resulting economy.

It was contemplated to meet this condition as it was met in 1905. A board was ordered to make recommendations which would bring about economy. (Copy of order attached, marked "Appendix D.") Pending the report of this board such economies as could be effected without changes in the law were made.

This was the condition of affairs when Gov. Gen. Harrison succeeded Gov. Gen. Forbes, and the legislature convened in 1913.

The report of the 1905 board had to be considered by the commission only, and most of the reforms recommended by it were adopted.

In 1913 the legislature consisted not only of the commission but of the assembly, and the legislature, with the concurrence and support of the Governor General, undertook to bring about those reforms which it deemed necessary to bring the cost of the civil service of the Government within its resources. In so far as it affected the American personnel the legislature took the identical action taken by the commission in 1905.

As a result of the appropriation bill of 1913–14 and executive action, the number of Americans in the service was reduced from 2,623 on January 1, 1913, to 1,978 on December 31, 1914, while the number of bureaus was reduced from 25 to 22.

While the reduction in the total of Americans employed from 1913 to 1915 was approximately the same as in 1905–1907 the number leaving the service from 1913 to 1915 was far less, as fewer Americans were given original appointments between 1913 and 1915.

I noted on my visit in 1915 the same "feeling of uncertainty among many efficient employees as to their tenure of office" reported by the director of civil service in 1906.

It is thus noted that similar conditions in two cases brought about similar results. In my opinion in both cases the same errors were committed, first, in providing for reduction of salaries in positions that required the services of highly efficient Americans; second, in not openly making a proper difference in salaries between residents of the Philippine Islands and residents of the United States holding similar positions; and, third, in not making it equally clear that while for some time it would be necessary to fill certain subordinate places with Americans, it was rather desirable than otherwise that these positions should be vacated at the end of contractual periods.

It is in recognition of the hardship of the present situation on American officials and employees of the Philippine Government that I earnestly recommend or renew the recommendation made in 1907 for the passage by the Philippine Legislature of the appended bill for retirement of certain employees of the Philippine Government.

It will be noted that the benefits of the bill are extended only to those employees or officials who receive an annual salary of $3,000 or more. This would indicate the view of the government on the question of permanency of employment and would be a notice to nonresident employees receiving less salary and who were not in line to be promoted to positions carrying a higher salary than $3,000 that their service with the Philippine government was on a contractual basis, and that their permanency in that service was not regarded as being to the interest of the government; while, on the other hand, its provisions should be attractive to those Americans whom it was desired to retain more or less permanently in the service. This would remove the constant feeling of uncertainty existing among American employees and which is emphasized at such times as retrenchment or efforts at reform bring about more than the usual number of changes in the personnel. This unrest among American employees of the government has been constant since the establishment of American government in the Philippines. For the 10 years ending June 30, 1913, the average annual number of Americans leaving the service was 646. For the two years since, ending June 30, 1915, the average annual number was 569. The number of Americans newly appointed in the service during the last two years was far less than in any similar previous period.

It has been sometimes said with apparent reason that the salaries fixed for Americans employed in the Philippine civil service were too high. Experience with the service does not show that this was the case, as the service was continually losing its best American employees by their voluntary withdrawal from the Islands. The director of civil service, in his report for 1907, commenting on this, said:

> It is a matter of regret to report that the percentage of withdrawals from the service of competent and desirable men has been greater during the past year or two than theretofore, while there have been fewer separations of the incompetent and undesirable. On January 1, 1907, there were 2,616 Americans having regular appointment in the service. During the fiscal year ended June 30, 1907, approximately 500 Americans resigned, about double the number withdrawing from the service during the preceding fiscal year. Of the 500 over 100 were university or college graduates, including scientists, civil engineers, surveyors, physicians, teachers, and subordinate officials, as against 40 university or college graduates for the preceding year. Of the remaining 400 a considerable number were graduates of high or normal schools. The loss to the Government of these trained and experienced men is in many instances irreparable. Good men were evidently discouraged, and apparently lost hope that the Philippine public service promised a career which would justify their remaining in it.

To those who have studied the subject for a number of years it is clear that the salaries paid to American employees in the Philippine Islands were low, and that, while the number of Americans could have been materially reduced, particularly in subordinate positions, those retained should be given increased rather than decreased salaries. The difficulty has been that Filipinos, both in high and in low positions in the Philippine government, have been given salaries altogether too high.

Many instances could be cited in which bright young Filipinos were attracted to the minor governmental positions not only from the professions but from commerce and particularly from agriculture. It is a distinct impediment to the progress of the islands that such is the case.

Statements loosely made that politics had been injected into the Philippine civil service are wholly baseless. It could with equal or perhaps greater accuracy be said that politics had been recently uprooted from the Philippine civil service, as among those leaving that service recently were persons more actively and more prominently in politics than those entering.

The fact is, however, that the Philippine civil service is and has always been practically untouched by politics. Allegations that politics had entered the Philippine civil service are equally untrue whether referring to the last two years or to prior periods.

SANITATION.

The great work of sanitation in the islands, which has been so commended by visitors in the past, has been steadily advanced. Health conditions in the islands continue to be much better than in any of the neighboring oriental countries.

During my visit cholera was reported at several points. The work of suppression was promptly undertaken, and under such well-organized system that there was no excitement or panic, but a feeling of confidence that it would soon disappear.

The last few years have been marked by a notable extension of sanitary work among the Moros and pagans.

The improvement of the water supply by the boring of artesian wells has been continued, and the number of such wells is being steadily increased. During my visit a well-boring outfit was just beginning an artesian well at the settlement of the Datu Piang up the Cotabato River in Mindanao, which illustrates to what remote points this work has extended.

The following municipalities have water systems: Manila, Cebu, Vigan, Zamboanga, Siquijor, Mambajao, Boac, Coron, Tagbilaran, Sariaya, Jolo, and Romblon.

The initial work on a much-needed improved system at Zamboanga was under way during my visit.

I was present at the inauguration of the new system at Vigan.

AGRICULTURE.

It is apparent that the progress of agriculture in the islands has not kept pace with progress in other directions, notably in the public improvements, education, and sanitation. The beautiful highways that have been built at large expense and which require annually a considerable amount for their maintenance have not been accompanied by the development in agriculture and the consequent traffic over the highways which ordinarily accompanies such construction. It would be difficult, if not impossible, to justify the beautiful roads in the Philippine Islands on economic grounds alone. If their construction is justified, it must be, for the present, on the ground of educational benefits and usefulness in the maintenance of law and order.

Agriculture being the principal and almost exclusive source of wealth of the people, its backwardness requires more than a passing word.

It is due in the first place to the extreme depression resulting from years of war and insurrection prior to the establishment of our Government in the islands, and to the conservative nature of the people; and, in the second, to the fact that the government had not interested itself in agriculture in the intensive way that it had taken up education and sanitation.

Recently the government has displayed greater activity in this direction, and there seems at present to be a more widespread interest in the development of agriculture. During my visit there was held in Manila a congress of agriculturists. There were nearly 600 delegates in attendance, representing practically all sections of the archipelago and every phase of agriculture.

This was the first congress of the kind in the history of the islands. The opinion was general that much good would come therefrom. Following, as it did, the organization of insular municipal and provincial agricultural societies throughout the islands under the stimulus of the bureau of agriculture, it betokens awakening interest in the power of cooperation.

Within the past two years the legislature has passed important acts for the special benefit of agriculture in the islands; notably, an act providing for inspection, grading and baling of manila hemp; and a sugar central act, providing government aid in the establishment of sugar centrals.

It is customary in discussing the backwardness of agriculture to lay great stress on the loss of work animals by rinderpest and on the frequent destruction of crops by locusts. I have no desire to minimize these plagues, yet I am confident that to a great extent the actual loss from these causes is largely due to the unsatisfactory condition of agricultural labor.

The same activity and cooperation of farm labor essential to any form of successful agriculture would practically nullify the ravages of these pests. Without such activity and cooperation, even in the absence of the pests, agricultural progress would lag.

The eradication of rinderpest has probably required a greater expenditure of money than all other work of the bureau of agriculture combined.

In order to show fully the effort made, the false hopes of success raised only to be disappointed, and how groundless is the complaint that recent changes in methods of handling the disease were threatening disaster, I append quotations from the annual reports of the commission from 1905 to 1913, inclusive, on this subject.

The abundance of carabao in the fields now makes it no longer possible to ascribe agricultural depression to disease of work animals.

The locusts are still bad. It would seem that they would, unless destroyed by natural causes, continue so until more general cultivation destroys their breeding places. Meantime, intelligent cooperation in fighting them would greatly reduce their ravages.

I saw locusts in considerable number in six widely separated places on my visit. There was widespread commendation of the work being directed personally by the assistant director of agriculture in combatting them.

I append extracts from the reports of the Governor General for 1912 and 1913, from which it will be seen that the locust conditions are unfortunately normal.

AGRICULTURAL COLONIES.

I visited the American colony at Momungan. It is situated on the road between Camps Overton and Keithley in Mindanao at a distance of about 6 miles from Camp Overton and at an elevation of about 1,300 feet above the sea. While the road is a mountain road, auto trucks make the trip from Overton, on the seacoast, to Momungan in about 50 minutes.

I found there 56 Americans with Filipino families—52 white men and 4 negroes. The colony is in a district inhabited by peaceful Moros engaged in agriculture, who may be employed as laborers, as the colonists are in position to use additional labor. The land selected for the colonists is in a beautiful rolling country traversed by the River Agus, as well as by the highway joining Overton and Keithley.

At the time of my visit the colonists had been established in their homes about one year, and the result of one year's work was remarkable. They had an average of about 16 acres of land per family in cultivation. They were harvesting corn, beans, sweet potatoes, and peanuts, and they had no difficulty in finding markets for these. The houses of the colonists were comfortable and suitable to the climate, and were notably better than those of Filipinos of the tenant class throughout the archipelago. There was no indication of dissatisfaction among the colonists, and if they continue to be satisfied there seems no reason why the experiment should not be a success.

There is considerable travel along the road traversing the colony, so that the colony is not isolated. The colony receives the sympathetic attention of the governor of the Province, Col. Gilsheuser, of the constabulary, and is assisted in so far as possible by the commanding officers of the two scout posts at Overton and Keithley. It is probable that no better site could have been selected in the Philippine Islands for this very interesting experiment.

The inception of this colony is not without interest. In February, 1913, the Philippine Legislature appropriated a fund of 400,000 pesos, known as the "Rice colonization and plantation fund," to be used for the establishment and operation of colonies and plantations on public lands, and by executive order No. 29, March 10, 1913, Gov. Forbes appointed a committee of three to carry the provisions of that act into effect. It seems that this act had contemplated the locating of Filipino families, taken from those district where there was a congestion of population, in districts where there was a lack of population and an abundance of land suitable to rice and other cereals.

Later, however, owing to the enforcement in the Philippine Islands of the act of Congress of August 24, 1912, providing for the discharge of civilian employees of the Quartermaster's Corps and their replacement by an enlisted personnel, many men who had been for a long time in the islands as Army employees and who were unwilling to enlist under the provisions of this act were discharged. At the same time, owing to necessary retrenchment, a number of men who had similarly been for years in the employ of the government of the Philippine Islands were discharged. These men were given opportunities to return to the States, and were, in general, treated liberally in the matter of final payments on discharge, but there were among them a number of men who had married Filipino women and who were unwilling to leave their wives and families, and who, believing that such families would be unhappy under conditions in the United States, elected to remain in the islands.

The heads of these families being without employment, the idea was conceived of taking advantage of act No. 2254, referred to, and of locating these families in a suitable place in the islands. Governor General Harrison, on April 2, 1914, appointed a board to investigate and report upon a suitable location for the establishment of an additional agricultural colony in which such of these people as were of good character and gave hope of success in an agricultural life could be located.

This board selected the site at Momungan. Suitable lands were surveyed and set aside, in order that each head of a family might take up a homestead, and other lands were reserved in order that the homestead might be enlarged. One can readily appreciate the doubts of the success of a sociological and agricultural experiment of this nature. One year after the establishment of the colony, however, conditions were such as to remove most of these doubts. It is proposed to place this colony under the administrative supervision of the Bureau of Agriculture.

I visited also the Moro and Filipino colonies established on the Cotabato River. These colonies are under the administrative supervision of the department of Mindanao and Sulu and are receiving constant attention from the governor of that department, as well as from the governor of the Province in which they are located.

In these colonies were approximately 1,000 families, divided equally between Christian Filipinos, recruited largely from the overcrowded Province of Cebu, and Moros of the immediate vicinity. Generally speaking, the Christians and Moros alternated. The details of the operations of these colonies are reported on by the governor of the department of Mindanao and Sulu.

The experiment of having Moros and Christian Filipinos live amicably in the same neighborhood is so far a success, and will continue to be a success if the supervision continues as sympathetic as it has been under Gov. Carpenter, the department governor, and Gov. Bryant, the governor of the Province of Cotabato.

The agricultural progress is, however, beset with difficulties. The land is flat bottom land covered by a dense growth of cogon grass. The sanitary difficulties would seem to be considerable. It is difficult to rid the country of mosquitoes and is difficult to bring into subjection the very heavy tropical growth of grass. Ordinarily, work of this kind would require a greater capital than that which the government can give to these colonists, and it requires a union of effort over a very considerable territory. It is fair to say, however, that the people in the colonies are not discouraged and that those who have supervision over them are enthusiastic.

The Filipino-Moro colonies experiment has great importance, in that it runs counter to two heretofore rather generally accepted theories: First, that the antagonism between the Moro and Christian Filipino was such that they could not live together in peace; and, second, that the rural Filipino was so without ambition that he could not be colonized even to better his condition. Gov. Carpenter is in a fair way to demonstrate the baselessness of both of these propositions if he has not already done so.

ROADS.

The road development in the islands is marked. Perhaps no country on earth is so fully equipped with good roads in proportion to its material wealth as the Philippine Islands. The road construction is being continued, and there is no disposition on the part of the people to object to road making. As one intelligent member of the legislature said to me, "We like to build roads because the money is spent in the islands. The labor is employed here and the material is purchased here." This, of course, would not justify, ordinarily, the construction of roads, but it seems to be the line of thought which has been pursued in constructing a good many of the roads where there is little traffic to justify the building, either present or prospective.

Unless there is an early development of agriculture, the maintenance of the present good-roads system will become a heavy burden on the people. It is fortunate that the outlook for agriculture is more favorable than in the past.

RAILROADS.

I personally inspected all the lines of the Manila Railroad Co., except the branch to Cabanatuan and the section in Albay, and all of the Philippine Railway Co.'s lines in Panay and Cebu.

I found these lines in every respect in first-class condition, well suited to the general conditions of the community served by them. Just as it has been noted that highway development has not been followed by the agricultural development along the route which might have been anticipated, it is noted that the railroads, particularly in Panay, have not been accompanied by that development which one might expect to follow the construction of a railroad through such fertile territory.

PRISONS.

So far as practicable, I visited the prisons at the several points touched by me and carefully inspected the San Ramon Prison in the Province of Zamboanga. There is probably no better equipped prison in the world and none better suited to its purposes than this prison, which has some 400 inmates. The one unfavorable feature is that with the beautiful, well-cultivated land and fine coconut plantation it is not self-supporting. The superintendent believes that it will soon be self-supporting.

The large central prison at Bilibid I visited, but did not inspect further than to see that the high standard which has been established at this prison in the past was maintained.

Prisons in the Philippine Islands compare favorably with the prisons anywhere in the United States.

POLITICAL CONDITIONS.

There are in the Philippines three principal political parties: the Nacionalista Party, which is the majority party; the Progresista Party; and the third party, which is an offshoot of the Nacionalista Party.

At present all of these parties favor, with certain modifications, the Jones bill, as it is known, or the bill "to declare the purpose of the people of the United States as to the future political status of the people of the Philippine Islands, and to provide a more autonomous government for those islands." This bill passed the House of Representatives and was considered by the Senate Committee on the Philippines, but not passed at the last session of Congress.

The Nacionalista (or majority) Party seem unequivocally for the bill with the expressed hope that it may be amended in certain ways, but passed without amendment rather than not passed.

The position of the Progresista Party seems to be that stated by the president of that party in articles criticizing the bill published in the organ of the party in the city of Manila. He said:

> At this point I wish to say that I do not desire that the "Bill, Jones, No. 2" should completely fail, my only desire, as well as that of many Filipinos, as I understand, being that the bill should be amended in such a manner that it shall constitute a true step toward the establishment of a local government responsible to the Filipino people, not to the Governor General, the President, the Secretary of War, or the Bureau of Insular Affairs, especially in those

subjects in which the international responsibility of the United States is not in any way affected.

Only thus may we succeed in ending the agitations of a political character that have disturbed the country for so many years, making possible a truly stable government accepted by all or by the majority of the Filipinos, if not as the "summum" of their aspirations, at least as a step that must lead us irrevocably, sooner or later, to the realization of our national ideals.

The third party advocates the passage of the Jones bill, with the preamble so modified as to provide a fixed date for the independence of the islands.

These parties are apparently, numerically in the order given, with the Nacionalista Party, embracing apparently a large majority of the people.

While not an organized party, there are certain Filipinos negligible in number, who do not favor any bill which contemplates the separation of the islands from the United States.

The Americans in the islands seemed almost unanimously to favor the administrative features of the Jones bill, but a majority seemed to be unfavorable to the preamble.

Generally speaking, all who had studied the bill so as to understand fairly well its provisions seemed to favor the bill as it was, or favored it with a desire that the preamble should be omitted, and that appointments by the Governor General should be effective without the confirmation of the senate created by the bill.

It is doubtful if there are any persons in the Philippines who consider political questions who do not feel that there should be some legislation along the general lines of that proposed. Certainly I received no intimation that there were such during my visit to the islands.

The reason for this was quite evident to those who have followed conditions in the islands during the past eight or ten years. The opinion is practically unanimous that the form of government established in the islands, with an appointive commission as the upper house of the legislature, an elective assembly for the lower house, and with the commission, or upper house, given exclusive legislative authority over one-third of the territory of the archipelago, was no longer workable. The disagreements between the two houses had assumed an almost irreconcilable form. This was displayed in the failure for three years of the legislature to agree on a budget, the most important legislation committed to it. That the failure of the government in its legislative branch was not more apparent was due almost entirely to the personal affection of the Filipinos for Gov. Forbes, then Governor General. This feeling which enabled Gov. Forbes to obtain the passage of many bills through the lower house of the legislature was manifested at the time in many ways, and I can testify that it remains now that Gov. Forbes is no longer in the islands. Notwithstanding this feeling, however, the Filipino opinion is that the form of government had outlived its usefulness, and this opinion is shared by practically all Americans in the islands, even by those who advanced the idea that it should have been remedied by the abolition of the popular assembly.

It may at first glance appear that the form of government is now operating smoothly, since, under Governor General Harrison, the annual appropriation bills have been passed and other bills advocated by the Governor General have received attention and, in general, been enacted. This conclusion, however, would be erroneous. At present there is what might be called a *modus vivendi* simply because both the upper and lower houses of the legislature are looking forward to the passage of a new organic act to take the place of the present government act which has developed to that point where further progress is impracticable. How long this *modus vivendi* would continue it is impossible to say, but every consideration of prudence urges the passage of a bill which more clearly defines the power to be given to the expression of Filipino public opinion in matters of legislation and the extent to which such power is to be limited by the relation of the islands to the United States.

There is, however, another and an important respect in which the form of government of the islands is defective and which no local good will can correct.

To-day the revenues of the central government are almost wholly derived from customs and internal revenues. Legislation of Congress has withdrawn from the local government power effectually to legislate in respect of either of these taxes.

The local government may not borrow without the express authorization of Congress.

The great wealth of the local government is in the public lands and mines and the local government is without power to enact laws which would bring about the development of these lands and mines.

For thirteen consecutive years the Philippine Commission urged amendment of the public land laws without receiving the attention of Congress.

For five years the commission begged authority to borrow money for needed public works in vain.

Briefly, the local government has been and is without authority to regulate its income, to avail itself of its credit, or to utilize its wealth. As a consequence, a highly efficient government with immense potential wealth is continually checked in its progress.

And to-day, while admiring the beautiful roads of the islands, one is inclined to the thought that their construction was economically without justification because of the lack of agricultural development following their construction. We see the government and the people freely spending money for roads, but without authority to take the necessary steps to develop the territory through which the roads passed.

While I have given above the public views of the political parties of the islands, I am convinced that no serious part of the Filipino people desires separation from the United States at this time, and that the serious people of the islands are wholly without belief that they can foresee clearly the day they would desire this separation. Nevertheless, there is likewise no doubt that all Filipinos look forward, with varying degrees of hopefulness, to the time when they can take over the full responsibility of their own government, and they desire a recognition of this hope by the United States.

Finally, Filipino public opinion in the islands is more favorable to the United States to-day than it has been at any time in the past. This is doubtless, in part, progressive. It is inspired, in part, by their belief that an earnest effort has been made to give them all the participation in the government which in their own interests could now be given, and, in great part, by the more general belief in the purely benevolent intentions of the United States toward the islands.

We have reached that point in our progress where there must be given to the government of the Philippines that power granted by the pending bill or we shall soon see retrogression in the great works of sanitation, education, and material progress.

Not the least wonderful feature of the work in the Philippines is that it was accomplished by a government in the islands whose natural resources were so without its control. One hesitates even to speculate on what would have been the progress in the Philippines had the act of 1902 given these powers to the Philippine Commission.

ECONOMIC CONDITIONS.

In studying economic conditions in the Philippine Islands it is necessary to have in mind a few factors that are abnormal and tend to explain apparent contradictions in reports of conditions.

While the Philippine government is self-supporting, the United States Government sends annually to the islands approximately $12,000,000 for disbursements therein in connection principally with the Army and Navy. The total of the taxes collected in the Philippine Islands per annum is approximately $18,000,000. The total exports approximate $48,000,000 per annum, differing but slightly with the total imports. The total circulation in the islands is approximately $26,000,000.

From the foregoing, it is apparent that the governmental activities in the islands, as compared to private activities, are far beyond anything that we are accustomed to see in the States, and when we consider the large proportion, averaging about 20 per cent, of the entire revenue of the islands, expended in permanent public works, we can see to what an extent business in the Philippines is based on the expenditures of Federal and Philippine Government funds and how out of proportion these expenditures are to the expenditures based on the one great source of wealth of the islands, agriculture.

This has been the case to such an extent that government retrenchment is followed by the cry of hard times on the part of merchants, even though agriculture, on which practically all of the people depend for a livelihood, is fairly prosperous. With the development of agriculture this condition should disappear. The exports from the islands should be many times as great as they have ever been, and there seems now a promise that this will be the case in the near future, particularly if the local government is placed in a position to utilize its resources and credit.

External trade.—The European war has greatly increased the transportation rates to and from the islands. It has interfered with the usual markets. At one time there were serious fears that the normal sources of such rice, coal, and fresh beef as were imported would be cut off. Fortunately this was satisfactorily adjusted.

The market for copra is still, however, interfered with, and accordingly the price is depressed. This is one of the principal exports of the islands.

The tobacco market is similarly affected.

Sugar, on the other hand, profited.

Notwithstanding the effects of the war, the total exports for 1914 were exceeded but once in the 10-year period.

Conditions affecting exports likewise affected imports. The total for the year 1914 was exceeded by three years of the 10-year period.

The total foreign trade for the year was exceeded in 2 of the 10 years ending in 1914.

So far, therefore, as the foreign trade is concerned, conditions, with the exception of those depending directly on shipping, indicate normal progress.

Statistics of foreign trade for 1915, to include the time of my stay in the islands, were of the same general nature as those of 1914.

Internal trade.—With reference to the internal trade, the tax collections on the business of merchants, manufacturers, and common carriers for 1914 would indicate that the total of the internal business in the islands had been exceeded but once in the preceding period of 10 years. This shows a very satisfactory interior condition, considering the handicaps of business as the result of the European war.

Unfortunately the effect of the war was not equally distributed in all localities and on all occupations. The Manila Railroad Co., which under its concession is required to carry on railroad construction in several places in the islands, dependent, as it is, on British capital, was compelled to curtail very much its program.

The copra and hemp Provinces were also depressed.

On the other hand, there was every indication of increased prosperity in the sugar industry and in those places, such as Iloilo, which depended upon that industry.

The presence in the Philippine Islands of three of the four American members of the Philippine Commission who resigned in 1913 engaged in business bears testimony to the hopefulness of economic conditions in the islands, the more so in that of the members of the Philippine Commission who had left the service prior to that time no one had engaged in any profession or business in the islands.

Industrial.—I visited, in so far as possible, the principal manufacturing plants. I inspected three of the largest cigar factories. While this was one of the industries that had been unfavorably affected by the war, the plants were working in full force and there was every indication of prosperity. Incidentally these factories are large, comfortable buildings, sanitary in all details, and under the constant inspection of the bureau of health.

I visited the sugar central at San Carlos in Occidental Negros, and the central of the Calamba Sugar Estates Co. on the Calamba friar estate. I found conditions at both of these places encouraging. These are two of the three largest modern centrals in the islands.

During my stay in the islands the insular board appointed for that purpose had determined on the erection of a Government-assisted central at Isabela in Oriental Negros, and an invitation for bids on its construction was issued. It would seem that the success of this central is unquestioned, as it is to be built in one of the best sugar sections of the islands where the necessary cane is assured.

During my stay in the islands the cement mill at Binangonan, near Manila, began operations. There has been talk for a number of years in the Philippines of establishing cement mills, but this is the first practical step taken. The mill was established on purely Filipino initiative and with Philippine capital.

I inspected on the island of Mactan in the Province of Cebu the plant under construction by the Visayan Refining Co. This will be by far the largest manufacturing plant in the islands outside of the city of Manila. The work of construction was progressing rapidly and the manager of the plant expected that it would be ready for business by January 1, 1916. Judging by the very encouraging success of the similar plant in Manila of the Vegetable Oil Co., this plant should be a success and will mean a great deal to the islands. It should be noted that the export of coconut oil from the islands has increased from a total of $40 in 1912 to a total of $2,619,188 in 1914. This increase is due entirely to the mill of the Vegetable Oil Co. in Manila.

I visited the gold-mining section of Masbate, where several mills are located, and I inspected the largest of these—that of the Colorado Mining Co. This company employs about 700 men and is operating to its full capacity. Shortly after my departure this company declared a dividend of 10 per cent, which indicates the confidence of its managers.

Household industries.—I spent two days in the small mountain town of Lucban. This town is known for its delightful climate and for the manufacture of hats from the buri palm. These hats are similar to the Panama hat of commerce. Hat making is here a household industry, and it was very noticeable that practically every woman and child appearing at the windows had in their hands a hat on which they were working. These hats have been heretofore, in the greater part, sold to dealers for export to Italy and Germany. The war had interfered to some extent with the normal demand. This, however, creates only temporary difficulty, as the hats will find a ready and perhaps better market in the United States. I understood that the prices had been depressed a little, but the supply never equals the full demand. ✓

Other household industries, such as the manufacture of mats, baskets, pottery, embroidery, lace, etc., and the various Philippine cloths, were all progressing along normal lines.

Broadly speaking, the condition of industrial and commercial industries in the Philippine Islands is normal and is particularly fortunate in being so during this period of general disturbance.

Agriculture.—This has been discussed generally elsewhere. As, however, agriculture is almost the exclusive source of wealth in the islands, one must understand that without development in agriculture it is idle to anticipate more than spasmodic development in industrial or commercial lines. Unfortunately the agricultural development has been slow. In the production of rice and sugar we have never exceeded the most prosperous years of Spanish control of the islands, and many of the Provinces bear evidence to-day of not being so productive as they have been in years prior to the insurrection in the Philippines. In other words, these Provinces have never recovered. Too much of the commerce of the Philippine Islands has been predicated on large governmental expenditures and expenditures for the Army and Navy in the islands and, with retrenchment on the part of the government and the removal of troops from the islands or from one section to another, there has been a tendency to complain of hard times.

Unfortunately the part of the community most affected by these changes has been the American business element. In Iloilo during my visit there was evidence of such prosperity as there had not been in Iloilo within the memory of man, and yet some of the American business people there were depressed because their business had to so large an extent been contingent on the continued presence there of the garrison of American troops, which had been removed.

Labor.—On the Manila Railroad and the Philippine Railway, with the exception of a few directing positions and higher technical positions, such as civil engineer, all the operations are carried on by Filipinos, who, in addition to the laborers of the road, are the station agents, conductors, locomotive engineers, and constitute the principal clerical force. Some of the mechanics are Chinese or Japanese.

A similar condition exists in the Manila Electric Railroad & Light Co. The railroad managers are thoroughly pleased with Filipino labor, and, in fact, the impression is general that more satisfactory labor could not be gotten in any country for these purposes.

In the sugar mills, shipbuilding, and other industrial plants the same condition exists. On the steamships engaged in interisland traffic, governmental and otherwise, the sailors, subordinate, and, in some cases, the principal officers are Filipinos. Expression is general that they are very satisfactory.

However, Filipino labor must in its great part be employed in agriculture. Unfortunately, this seems the point at which the Filipino laborer is weakest. This is witnessed by the general condition of agriculture in the islands, and is the general complaint of landowners and those who employ labor directly or who have Filipino tenants. There seems no doubt that this is due mainly to inherited conditions and to the unsatisfactory relation of agricultural employers and landowners to their laborers and tenants. It is observed that in such properties as the San Carlos Milling Co. and the Calamba Estates Co. there is little or no trouble with labor. The trouble seems to be where the old conditions continue and these are the general conditions, such estates as those mentioned being exceptional.

When I visited on Masbate the mine and mills of the Colorado Mining Co. I found there employed nearly 700 Filipinos. Most of these men had been agricultural laborers who had been transferred to this employment. Col. McCoy, the president and manager of the company, who was with me at the time of my visit, expressed the greatest satisfaction with Filipino labor. He explained that the men in starting were, in general, irregular in their appearance for work; that during the month the average man would work from 10 to 15 days. He authorized a bonus to those men who worked over 24 days a month and now the bonus has become practically a part of the monthly pay, as practically the entire force works more than 24 days a month.

The Filipino, when satisfactorily employed, continues indefinitely with his employer. On the Manila Railroad there are employees of all grades who have been with the company since the date of its beginning operations in 1888. I saw laborers on the right of way who were pointed out to me by the president of the railroad as having been so employed, and I saw their first Filipino locomotive engineer, who was still employed on the railroad. These were indicative of a general condition, and the laborers employed on the railroads outside of Manila were, in general, men who had been agricultural laborers.

It seems clear that to stimulate agriculture in the Philippine Islands it is necessary to bring about a more satisfactory condition of the laborer; that is, the laborer must perform more work and he must perform it in the belief that he is going to be benefited by it. It is not easy to change the customs of ages, and it is not desirable to make revolutionary changes. It is probable that if there were scattered throughout the islands, as there might well be, large estates under modern management, the conditions would be corrected thereby, and possibly it is the only way in which they could be corrected; but it would seem to be the duty of the agricultural bureau of the Philippines and of the labor bureau to investigate carefully conditions of the employment of agricultural labor and to suggest a gradual modification of existing conditions, so as to induce the laborer to work more and the employer to give him a larger benefit from the product of his labor.

When due allowance has been made for the various pests that have followed war and insurrection in the Philippines and for the recurrence of droughts unprovided against by irrigation and the visits of typhoons, against which there is no provision, the lack of progress in the Philippine Islands in agriculture still requires further explanation.

That the Philippine Commission from its organization appreciated the necessity of developing agriculture is apparent from its reports and is within the personal knowledge of those who have observed the working of that body. The difficulty seems to have been that the recommendations frequently made by the commission as to the public lands of the islands, an early recommendation as to immigration and similar recommendations which would have brought about results beneficial to agriculture, were unheeded. This brought with it a natural discouragement and the energy which should have been devoted preferentially to agriculture was devoted, in large part, to the development of those things which it was within the power of the local government to develop without assistance from Congress.

The backward state of agriculture in the Philippine Islands, more than anything else, points to the compelling necessity of granting to the local government in the Philippine Islands greater authority than it has had heretofore.

GOVERNMENT FINANCES.

Central.—Unless one has clearly in mind the very large portion of the expenditures of the Philippine government that have been made for permanent public improvements, one would get the impression that since the end of the fiscal year 1910 (June 30, 1910) the financial condition of the Philippine government had grown steadily worse. If, however, one gives proper value to the public works constructed and now in beneficial use, the resulting condition becomes one of only temporary difficulty, to be justified or not, according to one's judgment of the timeliness and value of the work accomplished.

In the three fiscal years 1908, 1909, and 1910 there was expended for public works, from the proceeds of bond sales, $2,150,000, and from revenue funds, $3,800,000. In the fiscal years 1911, 1912, and 1913 there was, on the other hand, expended for public works, from the proceeds of bond sales, $500,00, and from revenues, $8,280,000.

The natural result of this was that, notwithstanding there was in each of these latter years an excess of revenue over expenditures, other than for public improvement, the payment from the current revenues of such large amounts for public improvements had the effect of materially reducing the net working surplus of the government, so that a working surplus of approximately $9,500,000 on June 30, 1910, had been reduced to $7,100,000 on June 30, 1913. This reduction of the net working surplus resulted from carrying on a uniformly heavy plan of permanent improvements in the belief that the improvements were necessary to the progress of the islands, anticipating authority from Congress to cover the expenditures in part by an issue of bonds. The bond issue was not authorized. As a result of this, the unappropriated surplus of the government was reduced below what had previously been considered a safe amount. Even to maintain the working surplus at the amount stated it was necessary to make available funds that had been theretofore earmarked for other purposes. In practice this had very much the effect of making liquid certain assets of the government and prevented, to the extent availed of, the further obtaining of funds from those sources.

This of itself would have been the source of no difficulty had the program of public works been at that time completed. Such, however, was not the case, and it became necessary to suspend the large expenditures for public works, the only alternative being the contracting of a floating indebtedness, which has never been necessary in our government of the Philippine Islands.

The difficulty was emphasized in the last half of the year 1913 by a material decrease in revenue, due largely to the abolition by the tariff act of 1913 of the export tax in the Philippines.

As a result of these two conditions the net working surplus was reduced on December 30, 1913, to $5,600,000, of which but $250,000 was in cash available for appropriation.

The financial operations of the central government for 1914 were, briefly, in round numbers:

Net income	$10,400,000	
Liquidations of assets of the government	1,000,000	
		$11,400,000
Governmental expenses	8,000,000	
Fixed charges	800,000	
		8,800,000
Excess of revenues over governmental expenditures		2,600,000

But during the year $1,300,000 was expended on permanent improvements and $2,700,000 was given in aid to local governments.

This would indicate a deficiency in revenues for the year of $1,400,000. It will be observed that this deficiency is created largely by assistance given to the local governments, provincial and municipal.

It is evident that the government could not continue expenditures in excess of its revenues, even though the expenditures are for public improvements which become permanent assets, or for assistance to the provinces and municipalities. Therefore at the session of the legislature in 1914–15 additional internal-revenue taxes were imposed. By the provisions of the act these taxes were imposed for the fiscal year 1915. The fiscal and calendar years in the Philippine Islands are now identical.

The imposition of these additional taxes is in a fair way to make the revenues of the government for the current year exceed the expenditures for all purposes.

The additional taxes, however, being only for the year 1915, it is necessary to make some provision to prevent a future excess of expenditures over revenues, and it is expected that a new internal-revenue law will be enacted at the present session of the Philippine legislature.

The constantly increasing amount advanced by the central government to the provinces and municipalities is indicative of a condition which calls for correction. Either taxation should be revised, in order that the provinces and municipalities shall be self-supporting, or certain of the expenditures now classed as provincial and municipal should be taken over by the central government. Public opinion in the Islands, as elsewhere, seems to favor the first alternative; that is, a readjustment of taxation so as to make the provinces and municipalities self-supporting without giving up any of their present functions.

It is altogether probable that this view will lead to a certain loss of efficiency, which will perhaps be the price paid by the local governments for the satisfaction of expending their own funds rather than permitting them to be expended by the central government. There is no doubt that the work can be done more economically by the central government.

The total bonded indebtedness of the Philippine government is:

	Amount.	Redeemable.	Due.
Land purchase bonds, 4 per cent	$7,000,000	1914	1934
Public works and improvement bonds, 4 per cent	2,500,000	1915	1935
Public works and improvement bonds, 4 per cent	1,000,000	1916	1936
Public works and improvement bonds, 4 per cent	1,500,000	1919	1939

The balance in the sinking fund for the payment of the land-purchase bonds on December 31, 1914, was $1,927,980.59. The balance in the sinking fund for the payment of the public works and improvement bonds was on that date $855,832.58. There is no other indebtedness of the Philippine government.

The government, however, has under its contracts with the Manila Railroad Co. and with the Philippine Railway Co. a contingent liability to advance the interest on certain 4 per cent interest guaranteed bonds of these companies in case the companies should be unable from their income to pay this interest. Under this contingent liability the government had advanced on the 31st of December, 1914, a total of $1,317,448.50, practically all of which was on account of the Philippine Railway Co. The Manila Railroad Co. has generally earned the interest on its interest-guaranteed bonds.

The amount advanced by the government under these contracts becomes an indebtedness of the railroads to the government, payable at the end of the period for which the interest is guaranteed, about 1937. In practice this guarantee has the effect of requiring the government to advance in payment of interest approximately $250,000 a year. This amount is gradually decreasing.

However commendable the program of public-work construction may be, I am of the opinion that there should be a marked decrease in the construction of nonproductive public works, and that expenditures in the near future should be directed more largely to increasing the agricultural output of the islands. To maintain in their present excellent state the highways of the islands requires an annual expenditure of approximately $1,000,000, and as the mileage of these roads is increased the cost of maintenance is also increased. This becomes in its nature a fixed charge. Fortunately, the roads have been constructed very largely from revenue. Therefore, there is very little in the way of bonded indebtedness due to the roads. The maintenance charge, however, is a very large charge against the total government revenues which approximate $18,000,000 per annum.

Provinces.—The total indebtedness of the Provinces of the Philippine Islands is approximately $1,900,000. This indebtedness is to the insular, or central, government which has from time to time made loans to the Provinces from funds subject to its control. No Province has issued bonds or has outstanding public indebtedness.

The total provincial revenues approximate $3,500,000. There has been a disposition to increase the expense of the provincial governments without increasing their revenues. This has necessitated an increasing amount of assistance from the central government. The legislature is now considering the question of readjusting revenues, as heretofore stated, in order that this continual assistance from a central government may be avoided.

City of Manila.—The revenues of the city of Manila are approximately $1,500,000 per annum, which is supplemented by $625,000 contributed by the central government, and for the past two years the expenditures and fixed charges have slightly exceeded this amount. The city of Manila has a bonded indebtedness of $4,000,000, which becomes due $1,000,000 in 1935, $2,000,000 in 1937, and $1,000,000 in 1938. On December 31, 1914, there was a sinking fund of $310,000.

Municipalities.—The total income of all the municipalities and townships and settlements of the Philippine Islands is approximately $3,750,000 per annum, which is slightly in excess of their expenditures other than for public works. Loans to the municipalities, other than the city of Manila, have been made from time to time from funds controlled by the insular government.

A consideration of the foregoing statements and of the large expenditures for public improvements made from revenues show that the finances of the Philippine Government are in good condition. Such difficulties as have occurred have been temporary and almost entirely due to the lack of control which the insular government has over its borrowing power. This has had, with the natural disadvantages, the great advantage of preventing a large public indebtedness of the islands. The temptation to contract large indebtedness in connection with the public works which have been executed in the islands and those which are deemed essential to further progress would have been, it is believed, too great for the local government to have withstood.

It is belived, however, that a sufficient check would have been the requirement of the approval of the President prior to contracting indebtedness rather than the necessity of obtaining affirmative legislation from Congress. It is thought that nonproductive public works should be proceeded with cautiously, pending a development of the producing capacity of the islands. The latter is the great necessity at this time and should precede further heavy expenditures on other public works.

THE CITY OF MANILA.

The city of Manila is fast becoming, if it is not already, the most beautiful of the larger commercial cities of the Far East.

In addition to being the capital of the islands, it is the chief commercial port and business center. It is the location also of the larger industrial plants. While the islands are widespread, Manila is the recognized center. There has been at times, and is at present, a tendency in the extreme southern islands to make Singapore the commercial Mecca rather than Manila. In the interest of the community of the islands an effort should be and has been made to overcome this. Manila, being the seat of the central government, owes a great deal of the recent improvement to that fact. A great deal of the recent work has been done directly by the central government, and in the natural order of things a great deal more will be done in future. Furthermore, the city of Manila is assisted annually by a very considerable appropriation, now fixed at not to exceed $625,000 per annum, which goes to the maintenance of the government of the city.

By act No. 183, enacted by the Philippine Commission July 31, 1901, a charter was granted to the city of Manila. This charter vested the government in a municipal board consisting of three members to be appointed by the Governor General, by and with the consent of the Philippine Commission, and to be removed in the same manner, and it prescribed the duties of the several members of the board. This was later modified in some respects, and finally, by act No. 1869 of the Philippine Legislature, passed June 18, 1908, the government was vested in a municipal board consisting of six members, three to be appointed by the Governor General, by and with the consent of the commission, and to be removed in the same manner, an ex officio member—the city engineer—and two members to be elected from the city of Manila.

This modification has in practice proven detrimental to the interests of the city. A return should be made to the former smaller board and to the principle on which the original law was based, which recognized Manila as a city of the Philippine Islands rather than a city of those who reside therein. Local politics should not enter into the managament of a city which is alike the seat of the government and the principal industrial and commercial center of the entire islands.

The local population of Manila has its representation in the assembly and has never been without its representation on the appointive commission, or upper house.

The situation created by the addition of the elected members to the board is such that a transfer of the capital from Manila is seriously considered by leading Filipinos. This would be no remedy, in so much as Manila would continue to be the principal port and the industrial center of the islands.

The organic act of the Philippine Islands should provide that the government of the capital city of the islands should be vested in a board consisting of three members, to be appointed by the Governor General of the islands.

THE DEPARTMENT OF MINDANAO AND SULU.

Probably the most important office under the Philippine Commission to-day is that of governor of the Department of Mindanao and Sulu.

This department includes seven Provinces, about one-third of the area of the Philippine Islands, practically all of the Mohammedan and about one-third of the pagan population of the islands, together with a considerable Christian population.

Because of the turbulent nature of its inhabitants it had, under the Spanish administration and under ours until December, 1913, been treated largely as a military problem. Gen. Pershing, the last military officer holding the office of governor of the Moro Province, became convinced that with his departure conditions would be ripe to establish in that region a purely civil government.

This view was adopted, and on his departure in December, 1913, Governor General Harrison appointed, to succeed him as governor, Frank W. Carpenter. This selection was made with due appreciation of the delicacy and difficulty of the task imposed on the new governor, whose entry on his duties was practically coincident with the withdrawal of all American troops from that region.

It was felt that the most difficult task was imposed on the man who by experience was best qualified to undertake it.

Mr. Carpenter had for years, as assistant executive secretary and executive secretary, been most intimately associated with the Filipino people. He had won their confidence and affection.

My visit to his department satisfied me that his selection had been a wise one. Customs inherited through ages may not be forgotten in a few months, and it is perhaps too much to expect that the turbulent Moros have become for all times men of peace. There was certainly no indication of disorder at the time of my visit. There was not only a spirit of friendliness displayed by the Moros to Americans, but to the young Filipinos—men and women—whom Gov. Carpenter was introducing in his school and sanitary work among the Moros and pagans there was extended a welcome apparently from the heart.

Too much can not be said in praise of the fine spirit of these young Christian Filipinos who had begun this work in Mindanao and Jolo. I am not sure that they were not moved somewhat by the desire to show that the Christian Filipino and the Moro were not antagonistic and that the peculiar hostility of the Moro to the Filipino, so much talked of, was a myth.

Whatever the motive, a dreary task is being undertaken with a fine spirit and with most remarkable success.

Gov. Carpenter's annual report, to be published as a part of the Annual Report of the Philippine Commission for 1914 (Reports of the War Department for 1915, vol. 3), is a relation of a striking piece of work well done. Conditions, as I found them, verify, as well as two years' time permits of its verification, the wisdom of Gen. Pershing's recommendation of a civil government in the Moro Province and of Gov. Harrison's selection of the civil governor.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS.

One hears in the Philippine Islands criticism of the insular government. I heard such criticism while there. It is evident, though, that much of the criticism which we see published in the United States is not heard in the islands by those who have intimate knowledge of the affairs of the government there. Such criticisms are, in great part, reserved for those who are ignorant of conditions in the islands, present and past.

In general, the criticisms, in so far as definite grounds therefor could be obtained and in so far as they affected the executive departments of the government, were without basis or trivial in character.

I heard no criticism whatever in the islands affecting the integrity of any official of the government. Minor employees have from time to time been discovered as defaulters and guilty of dishonest practices. In the early days of the organization of the Philippine government the number of such offenders was quite large, due to the necessity of selecting employees from those available and without the careful investigation of their character under rules which the commission adopted and applied as soon as practicable. Thereafter, as the result of an improved civil service, the number of defalcations and irregularities was greatly reduced, and this favorable condition has continued.

The detection of crimes of this kind is largely the result of the constant inspections by the auditor's office, and the auditor's office in the islands to-day leaves nothing to be desired.

The bureaus of the government have at their heads men long in the civil service of the Philippine government. Notwithstanding the loss of some excellent men as the result of retrenchment and voluntary resignations, the bureaus of the Philippine government had never had at their heads men of as long average service in the islands. The bureau of customs and of internal revenue, the two bureaus from which the government receives its principal revenues, are, as at present organized, highly efficient, and no bureau of the government is headed by an inexperienced or inefficient man.

The governing boards in the Provinces and municipalities are elective and display a varying degree of efficiency. I examined more closely the Province of Tayabas and the municipality of Lucban. Knowing the impossibility of examining all or a large number, I took the Province of Tayabas as typical, and I selected the municipality of Lucban because it was remote from the railroad and traversed by no improved highway. I found conditions in the Province and in this municipality to be highly creditable to the local officials.

These officials took the greatest pains to show me and to explain to me every detail of local administration. They were apparently proud of what they were doing, and their pride was justified by conditions.

One of the most agreeable impressions of my travels in the islands was the kindly feeling of the Filipino people toward Americans and the warm feeling of personal regard they evinced for those Americans who were working with them in the government service. I found this feeling generally throughout all the Provinces and municipalities visited by me. This is a condition which reflects credit alike on the American officials and on the people among whom they work.

In closing, I can quote, as fully applicable to conditions as they exist in the islands to-day, what Secretary Dickinson said in his report of 1910:

> I am satisfied and I believe that anyone who makes a careful study of the personnel of the Philippine government will feel that the United States has just reason to be proud of the government it has established in the Philippine Islands.

The high motives which prompted Governor General Harrison's acceptance of his office have guided his conduct thereof. He has labored unceasingly, and as a result of these labors he has gained the admiration and respect of the people of the islands. As a consequence, the excellent state of law and order prevailing in the Christian provinces of the Philippine Islands is better assured than it has been at any time in the past, while the penetration of schools and sanitary work in the portions of the islands inhabited by the wild people and Moros, particularly the latter, is beyond the most sanguine expectations of two years ago.

The unfortunate condition existing in the legislature which resulted in a failure for three years to pass the annual appropriation bill and the failure to provide revenues by necessary taxation has been replaced by a spirit of good will and cooperation between the two houses. Appropriation bills have been passed promptly, and additional taxes have been imposed to meet the heavy public work expenditures which the legislature does not wish to suspend.

The legislative treatment of the Moros and other non-Christian inhabitants not represented in the legislature has been more liberal than at any time in the past.

Very respectfully,

Frank McIntyre,
Chief of Bureau.

Hon. Lindley M. Garrison,
Secretary of War.

APPENDIXES.

APPENDIX A.

ITINERARY OF GEN. McINTYRE.

1915.

July 31. Manila.
August 1. Manila.
2. Manila.
3. Manila.
4. Manila.
5. Manila.
6. By rail to Batangas and Pagbilao; by highway to Atimonan and return.
7. By rail to end of line, walking 3 miles to southern line, thence to Hondagua by rail, returning to Lucena, Tayabas Province.
8. Lucena, thence to Lucban via Tayabas.
9. Lucban.
10. Manila; night of 10th, at Los Banos.
11. Manila.
12. Left Manila for Mangalden; thence by automobile to Baguio via Benguet Road.
13. Baguio, leaving in afternoon, via Naguilian Road, for Bauan and San Fernando.
14. Arrived Vigan, via San Fernando and Tagudin.
15. Vigan, attending inauguration of waterworks system.
16. Left for Laoga, Ilocos Norte, returning to Vigan same evening.
17. Left Vigan, arriving Manila morning of the 18th via Bauan.
18. Left Manila 11 p. m. for southern trip.
19. At sea.
20. Arrived Capiz, going by Philippine Railway to Iloilo and leaving there at midnight.
21. Arrived San Carlos, Negros; visited plant of San Carlos Sugar Central and left in afternoon for Camp Overton.
22. Arrived Camp Overton, proceeded in automobile to Dansalan, via Overton-Keithley Road, passing through Camp Keithley. Crossed Lake Lanao in launch to Tampanan, returning Dansalan; thence to Camp Overton en route to Jolo.
23. Arrived San Ramon Penal Farm and inspected prison, leaving in evening for Jolo.
24. Jolo. Automobile trip across island to Maimbung and Indana, leaving at noon en route to Cotabato.
25. Arrived at mouth of Cotabato River and proceeded up river, stopping at Cotabato town and Dulauan.
26. Arrived at Fort Pikit, visited fort, proceeded down river, making several stops.
27. Arrived Zamboanga.
28. Left Zamboanga for Cebu.
29. Arrived Cebu.
30. Cebu.
31. Cebu.
September 1. Arrived Aroroy, inspected Colorado Mining Co. mine and mills, en route to Manila.
2. Arrived Manila.
3. Manila and vicinity.
4. Manila and vicinity.
5. Manila and vicinity.
6. Manila and vicinity.
7. Manila and vicinity.
8. Manila and vicinity.
9. Sailed from Manila.
October 11. Arrived San Francisco.

APPENDIX B.

EXTRACTS FROM THE REPORTS OF THE PHILIPPINE COMMISSION ON THE SUBJECT OF RINDERPEST, 1905 TO 1913, INCLUSIVE.

[Extract from report of Gov. Gen. Luke E. Wright, Nov. 1, 1905 (Philippine Commission Report, 1905, pt. 1, p. 84).]

The rinderpest and other diseases which afflicted the carabao, horses, and cattle have been practically exterminated, and while the people still need more work cattle than they have, the supply is slowly but steadily increasing. The insular government, through its board of health, has kept a large force of men in the field who have inoculated the cattle, and this made them immune against rinderpest. It is believed that there is no further danger from this source.

INOCULATION AGAINST RINDERPEST.

[Extract from report of Dean C. Worcester, secretary of the interior, Oct. 20, 1905 (Report of the Philippine Commission, 1905, pt. 2, pp. 47–49).]

Late in the year 1902 the manufacture of antirinderpest serum was begun by the bureau of laboratories. This serum, if injected hypodermically in proper quantity, affords a temporary immunity against rinderpest, which ordinarily lasts from one to two months. Permanent immunity may be secured through inoculation by the so-called "simultaneous method," which consists in injecting 1 cubic centimeter of virulent blood from a sick animal on the one side and 80 cubic centimeters of serum at the same time on the other. The result is ordinarily a very slight attack of the disease, which does not prejudicially affect the general health of the animal inoculated and confers permanent immunity.

The difficulty involved in this method arises from the varying susceptibility of individual animals to rinderpest. The majority of Philippine cattle may be classified as normal, and with normal individuals inoculation by the simultaneous method is uniformly successful. Some animals, however, have a greater or less degree of natural immunity. This fact is discovered when they are inoculated by the simultaneous method for the reason that they fail to develop fever. The operation is then repeated until they do react, more virulent blood and less serum being used each time. A small percentage of animals are, however, highly susceptible. With this class the usual dose of serum fails to hold the disease in check, and it may terminate fatally.

The percentage of mortality which may be expected has been found to vary widely in different countries and with different breeds of cattle, this variation depending partly upon varying susceptibility to rinderpest and partly upon complications with other cattle diseases generally prevalent in the countries in question.

The first simultaneous field inoculations in the Philippines were carried on by veterinarians employed by the bureau of laboratories, and were extremely successful, the mortality being only 3.44 per cent.

Under general provisions of law the board of health for the Philippine Islands was charged with the combating of infectious diseases of animals. During my absence in 1903 the commissioner of public health insisted quite strongly that cattle inoculation be turned over to the board of health. This was done, and a veterinary division was established in that bureau.

In my opinion, sufficiently careful supervision has not been exercised over the veterinary division. In at least two instances veterinarians did careless work, which resulted in heavy mortality and created strong local prejudice against the inoculation. The corps apparently became alarmed, and the simultaneous inoculation was abandoned and serum alone was employed to stop the spread of the disease. This change of policy was adopted without my knowledge or approval. It, of course, pleased the more ignorant owners of cattle, who were delighted when the spread of the disease was promptly checked in their herds by the use of serum, with no mortality among animals not actually infected at the time of inoculation, while some 60 per cent of the infected animals were cured.

If the insular government had abundant means and the necessary corps of veterinarians, it could unquestionably protect the cattle of the Philippines against rinderpest by inoculation with serum alone; but the expense involved would be enormous, for the reason that the immunity conferred is only temporary, and after two or three months rinderpest is likely to reappear in the very herds where it has been checked. If permanent results are to be secured, the simultaneous method, or some modification of it, must be employed.

Recently two important additions have been made to our knowledge relative to the use of antirinderpest serum. One is that the serum may be used not only as a preventive agent to protect well animals, but also as a curative agent for those actually diseased. For the latter purpose it is best to inject directly into the jugular vein. The chief veterinarian states that of the infected animals treated with serum only 40 per cent have died, as against approximately 85 per cent of those not so treated. In other words, 60 per cent of the animals treated have been saved. The second discovery of importance is that if the serum be used upon an animal on a given date, and virulent blood be injected 10 days or two weeks later, permanent immunity is secured and the percentage of mortality is reduced, with Philippine animals at least, practically to zero. At the serum laboratory, where this method is now exclusively used, not a single animal has been lost during the past year as a result of inoculation.

There is not the slightest doubt as to the efficiency of inoculation by the simultaneous method or by the modification of that method above referred to, and complete demonstration of this fact is furnished every day at the serum laboratory, where it is necessary to keep constantly on hand a supply of animals suffering from rinderpest in order that virulent blood for the making of serum may be available The whole place is so infected with the disease that if animals which have not been immunized are brought there they promptly sicken and die. Immunized animals, however, may be and are kept there constantly and never contract the disease.

It may therefore safely be said that the problem of doing away with rinderpest in these islands reduces itself to one of administration and of overcoming popular prejudice where such prejudice exists. The latter difficulty is not of a permanent nature. When the people once become familiar with the results of inoculation they are no longer opposed to it. In point of fact, requests for inoculation have come in during the past year far more rapidly than they could be acceded to.

The administrative problem, which involves keeping the veterinarians supplied with serum at remote points in the archipelago and the exercise of necessary supervision over their operations, presents no insuperable obstacles, especially as the serum will, under reasonably favorable circumstances, keep six months.

Were it possible in the Provinces to use serum first and follow it after a suitable interval with virulent blood, a good deal of loss to property owners might be saved, but this is difficult, especially in the case of the more ignorant classes, who are satisfied to have their animals temporarily protected against the disease by serum, and are unwilling to return them for inoculation with virulent blood.

At the present time veterinarians are instructed to use serum inoculation on herds in which rinderpest has appeared, as inoculation of diseased animals by the simultaneous method would be apt to result fatally. The use of the serum temporarily protects the animals which are not infected and cures many of those which are actually diseased. After a suitable interval the veterinarians then return and inoculate all of the animals with virulent blood, thus conferring permanent immunity upon them.

In the event that a property owner will not consent in advance to subsequent inoculation with virulent blood, veterinarians are instructed to decline to use serum on his herd. All inoculations of animals belonging to herds which are free from disease are by the simultaneous method, or with serum followed by blood, as circumstances make necessary.

Especial attention is being given to inoculation of animals in the sugar and hemp producing Provinces. In western Negros the systematic inoculation of all cattle in the Province has been requested by the people, and is being performed with the cooperation of the provincial and municipal authorities. The islands will be covered, Province by Province, as rapidly as circumstances will permit. During the year rinderpest has been temporarily checked in 22 Provinces.

The disastrous results of attempting inoculation of the recently imported dairy herd against rinderpest caused groundless loss of confidence on the part of many persons in the efficacy of this treatment. It should be remembered that these inoculations were made on animals which had come from a country where the disease had never existed, and which had just made a long overland journey, followed by a sea voyage of 10,000 miles. The results made it evident that much greater care was necessary in dealing with such animals, but threw no light on the question of the value of simultaneous inoculation in dealing with rinderpest among Philippine cattle under ordinary conditions. Conclusions on the latter subject must be drawn from actual experience, the results of which have been such as to afford an overwhelming argument in favor of the inoculation.

DIVISION OF ANIMAL INDUSTRY.

[Extract from report of Dean C. Worcester, secretary of the interior, Sept. 1, 1906 (Report of the Philippine Commission, 1906, pt. 2, pp. 48–49).]

Under the provisions of act No. 1407, the veterinary corps was transferred from the bureau of health to the bureau of agriculture on October 19, 1905, and in the latter bureau a division of animal industry was established, which included not only the work of veterinarians in the inspection and control of animal diseases, but the work of the stock farm at Baguio, where experiments are being conducted in the breeding of horses, cattle, sheep, goats, and hogs; horse breeding throughout the islands by the use of improved sires imported by the bureau of agriculture and loaned to the provincial governments and private persons; and the dairy farm at Manila.

When this work was taken over a severe outbreak of rinderpest prevailed in western Negros, and another existed in the Province of Zambales. Inoculation by the simultaneous method was used in Zambales with complete success, the mortality among the inoculated animals being extremely low, and complete immunity being obtained. The same method was employed at the outset with equal success in Negros, but after a short time an extraordinarily high mortality developed, which necessitated the immediate dispatch of an employee of the bureau of science in order that the cause might be ascertained. It proved to be due to the prevalence of surra in the infected herds. Carabao infected with surra may continue to live and work for years, but while inoculation by the simultaneous method of healthy animals is attended ordinarily with a loss of but 3 or 4 per cent, costly experience in Negros abundantly demonstrated the fact that the same method employed on animals infected with surra caused a loss of approximately 50 per cent.

As the surra infection proved to be general in the towns north of Bacolod, it was obviously impracticable to use the simultaneous method there, and serum alone was employed. It has proved a very simple matter to stop an epidemic of rinderpest with serum, but the immunity thus conferred is transient, lasting at the best but two or three months. After the disease had been fully controlled in Negros an effort was made to interest some of the more important hacenderos of the Province in the establishment and maintenance, for their own protection, of a cattle quarantine. This Province imports carabao and cattle from all over the archipelago, and the fact was pointed out that rinderpest would inevitably be reintroduced unless adequate quarantine measures were adopted. Such measures could be made effective only through the cooperation of the people themselves, as carabao can be landed at almost any point on the west coast of Negros. It proved impracticable to awaken the slightest interest in cattle quarantine, and as a result the disease has again been introduced, has caused serious damage, and must once more be stamped out.

The islands were almost free from rinderpest from January to July. With the oncoming of the rainy season outbreaks have occurred at a number of widely separated points, but have been promptly controlled as soon as men could be got on the ground.

In the Province of Batangas, distant but half a day's journey from Manila, the disease prevailed for two months, and more than 500 head of cattle died before it occurred to the governor to advise the bureau of agriculture. The few men available were immediately dispatched to the scene of trouble, and the results were so satisfactory to property owners that the governor sent an urgent telegram requesting that 20 more inoculators be sent at once.

The treatment with serum of animals actually sick of rinderpest has resulted in the saving of approximately 70 per cent of those treated. As a result of the checking of rinderpest by inoculation the supply of cattle and carabao is steadily increasing. Little by little the people will learn the necessity of promptly informing the director of agriculture when the disease appears in any given locality, and there would seem to be no good reason why it may not ultimately be eliminated as a serious cause of death among cattle in the Philippines.

CONTROL OF INFECTIVE DISEASES.

[Extract from report of W. C. Welborn, director of agriculture, Aug. 10, 1906 (Report of Philippine Commission, pt. 2, pp. 176–177).]

When the veterinary work was taken over from the board of health a severe outbreak of rinderpest prevailed in the beet-sugar growing section of Occidental Negros, where it had caused serious losses among the carabaos and cattle of that Province. There was a scarcity of antirinderpest serum at that time which materially hindered the work of inoculation. The simultaneous method was being used with apparently good success. In a few instances a high rate of mortality was encountered, which proved to be due to complications of surra and hemorrhagic septicemia. This made it necessary to suspend the use of the simultaneous method before the outbreak was fully under control, but by the use of serum in and around the infected centers, the disease was well under control by the end of December. The only other outbreak of importance which prevailed at that time was in the Province of Zambales. Simultaneous inoculation was used there with good success. So far as known only a few scattered cases occurred in widely separated districts during the five months following January 1, the principal Provinces affected being Misamis, Occidental Negros, Albay, and Bohol. Most of the smaller outbreaks were readily suppressed by serum inoculations given to the affected and exposed animals and those in the immediate vicinity. Quarantine measures were enforced as far as practicable, but in the absence of any general law making veterinary sanitary measures compulsory, reliance had to be placed principally in provincial and municipal officers.

The governors, provincial and municipal boards, presidentes, and local officers of the bureau of health have rendered valuable assistance in locating infected centers and suppressing infective diseases.

During the eight months covered by this report 5,780 cattle and carabaos have been inoculated, and 245, or 4.23 per cent, of these died subsequently from rinderpest. From the statistics available, the exact number of animals suffering from the disease at the time of inoculation can not be determined, but practically all of the deaths were among animals receiving serum as a curative agent. In most cases where the animals were not sick or did not develop the disease in one or two days after the inoculation the serum protected them against a fatal attack. However, it should not be overlooked that in inoculating animals in these islands by either method a great many of these animals are likely to be immune from previous outbreaks of rinderpest. Therefore we should be careful not to claim credit for saving all the animals inoculated that fail to contract the disease. In Germany a few years ago it was reported that inoculation with virulent blood was abandoned because losses were as high as 25 per cent, and because it spread the disease.

Of our inoculations 4,961 head received serum only, with 152, or 3.08 per cent. subsequent deaths; 685 received simultaneous inoculations, with 80, or 11.69 per cent, subsequent deaths; 134 head received virulent blood following about 10 days after the serum inoculation, and of these 13, or 9.6 per cent, died subsequently of rinderpest.

In considering these figures it should be remembered that a much larger number of animals were inoculated with serum only than by either the simultaneous or deferred methods; that the bulk of the animals receiving serum only were never exposed to the disease; and that all of those receiving simultaneous or deferred inoculation are given a cubic centimeter or more of virulent blood, which produces a genuine case of rinderpest, and would in most cases prove fatal but for the serum preceding or accompanying the blood given. On the other hand, all animals suffering from the disease at the time of inoculation are included in those receiving serum only, and it is among these that the heaviest death rate occurs; while all animals given simultaneous or deferred inoculations are judged to be free from rinderpest at the time the virulent blood is administered. It has been observed that animals suffering from surra, hemorrhagic septicemia, foot-and-mouth disease, or Texas fever die readily from rinderpest contracted either by natural infection or virulent-blood inoculation simultaneously with any of them. As the first three frequently exist in communities where rinderpest has appeared, it becomes impracticable to give any form of virulent-blood inoculation without first eliminating all of these diseases as complications. This is very difficult in the cases of surra and hemorrhagic septicemia. Texas fever is of no importance with native cattle, as they are generally immune to it, but has been a serious complication in imported nonimmune cattle, especially from the Northern States and southern Australia. The virulent blood taken from native animals to inoculate the imported cattle against rinderpest precipitates a case of Texas fever soon after the rinderpest reaction has occurred.

The principal advantages of the serum method of inoculation are that it is easily and quickly administered by any person of ordinary intelligence after a little experience. An inoculator can cover a large territory in a short time; it imparts a temporary immunity which usually protects the animals until an outbreak can be suppressed; it meets with popular favor, which is essential; it can not produce death and may be given indiscriminately to animals suffering from the disease, exposed to it, or free from it; serum will save the lives of a large per cent of animals in which rinderpest has already developed; draft animals may continue to work after inoculation; it requires less serum than the deferred method; and it is the cheapest method for a given number of animals.

Some of its disadvantages are that the immunity produced by serum is only temporary; the animals are liable to contract rinderpest if exposed to it after the lapse of three or four months unless inoculated again; and it requires more serum than the simultaneous method.

The principal advantages of the simultaneous and deferred methods are that they impart permanent immunity to the animals inoculated; it increases the value of the animals because they may be herded or driven where they will be exposed without fear of contracting rinderpest; they are not nearly so liable to carry the infection as nonimmune animals; they may serve as a barrier against the spread of the disease where a large number of immune animals exist in a community.

Some of the disadvantages of these two methods are the high rate of mortality which follows the inoculations; they are purely prophylactic and can be used only with noninfected animals; can not be practiced with safety where other infective diseases exist as complications; slow and tedious of administration, requiring the services of a skilled veterinarian; both methods are more expensive for a given number of animals than the surum method, and if an attempt were made to immunize all the bovine animals of the islands the cost would become prohibitive; they are not in favor among the people and would have to be enforced by legal processes; danger of further spreading the disease, as each animal receiving virulent blood carries the infection and must be kept in quarantine until fully recovered.

Under the conditions which prevail in these islands the surum method promises best results for general use. The simultaneous method may be used to advantage where the country is densely settled and the animals concentrated in large numbers, provided no complicating diseases prevail at the time of inoculation. The deferred method is practical only with small herds of valuable animals, such as imported dairy cattle, and where complications might follow the simultaneous method.

[Extract from report of Dean C. Worcester, secretary of the interior, Oct. 28, 1907 (Report of the Philippine Commission, 1907, pt. 2, p. 52).]

The energies of the division of animal industry have been largely directed toward holding in check this disease, which has appeared at one time or another during the year in the majority of the Provinces. The policy at present pursued is to combat it at all points where it appears by the use of serum only. This practice has the advantage that it immediately checks the disease in any given locality, is not attended with any loss due to the inoculation, and even results in the cure of a very large percentage of the animals diseased at the time of inoculation. It is, of course, very popular with cattle owners. The drawback is that the immunity produced is of a temporary nature, and after two or three months animals which have received only serum inoculation become again susceptible to rinderpest, although if attacked they suffer less severely than do those which have not been immunized.

The simultaneous method of inoculation in which blood from a diseased animal and serum are administered at the same time, confers permanent immunity, and can be effected with a very low percentage of loss, if the animals inoculated are not suffering from surra and are properly cared for while undergoing treatment. The neglect of owners who sometimes even leave them without drinking water while under treatment and the complications which have arisen through the occasional unsuspected presence of surra have led to so many difficulties that it has been deemed advisable to confine inoculations by this method to animals under treatment at regular quarantine stations except in special cases.

In repeated instances rinderpest has been introduced into provinces which had previously been entirely free from it, through the importation of diseased cattle. The need of an effective quarantine law which would give the bureau of agriculture power to penalize and prevent the shipping of animals suffering from dangerous communicable diseases has long been apparent, but as in the case of all sanitary measures, such a law could not be of practical value until the state of public sentiment justified its enactment. On October 10, 1907, it was believed that this time had come, and an act to prevent the introduction into the Philippine Islands of dangerous communicable animal diseases, to prevent the spread of such diseases within the islands, and for other purposes, was passed by the commission.

Several especially valuable practical demonstrations of the value of inoculation by the simultaneous method have been afforded in the provinces, where animals thus immunized have remained well while nearly all others about them sickened and died. There is now a strong demand for the animals permanently immunized at the serum laboratory, and a private cattle dealer has recently announced his intention of establishing extensive yards and going into the business of permanently immunizing and selling cattle. The highly satisfactory results obtained in checking rinderpest in badly infected herds brought to Manila for slaughter, and in saving the animals already diseased, have been especially appreciated by the public, and it seems not to much to hope that serious popular opposition to cattle inoculation, due to ignorance or superstition, is now decidedly on the wane and that the most serious difficulties in the way of protecting the horned cattle of the Philippines from rinderpest have been overcome. At all events, the demand for serum has been greatly in excess of the available supply and more immunization work could therefore not have been done no matter how great the demand for it. Arrangements have now been made materially to increase the supply of serum, the unexpended balance of the congressional relief fund having been made available for this purpose, and effective means of preventing infection by dust during the dry season have been devised, so that its keeping properties have been greatly improved and the danger of abscesses following inoculation seems to have been completely done away with.

[Extract from report of G. E. Nesom, director of agriculture, Aug. 8, 1908 (Report of Philippine Commission, 1908, pt. 2, p. 303).]

As in previous years, rinderpest has continued to be the most destructive infective animal disease existing in the islands. The situation has been greatly aggravated by the constant importation of infected cattle from Hongkong.

On account of the increase in the number of outbreaks over that of the previous year, it has been necessary to limit the inoculations almost entirely to herds actually infected.

During the year 6,933 cattle and 14,072 carabaos, or a total of 21,005, were inoculated with antirinderpest serum. Of these, only 621, or 2.95 per cent, are reported as having died.

The percentage of animals suffering from the disease at the time of inoculation has been very large, and the total number inoculated was nearly 5,000 head more than for the previous year.

The total amount of serum used in making these inoculations was 5,384 bottles of 300 cubic centimeters each.

The principal outbreaks of rinderpest have occurred in the Provinces of Batangas, Pampanga, Capiz, Antique, Negros, Occidental, and La Laguna. It has also appeared to less extent in most of the other Provinces.

In many cases the provincial and municipal officials have cooperated by establishing and policing systems of quarantine, and have otherwise given valuable aid in the work. This is necessary, as the bureau of agriculture has no means for employing a force sufficiently large to do this work throughout the islands. Besides, to do so would be a violation of the spirit of the local self-government system in general operation throughout the Provinces.

BUREAU OF AGRICULTURE.

[Extract from report of Dean C. Worcester, secretary of the interior, Oct. 20, 1909 (Report of the Philippine Commission, pp. 118–119).]

Suppression of animal diseases.—Beyond doubt the most important work of the bureau of agriculture during the past year has been that for the combating of dangerous communicable diseases of domestic animals. In my last annual report the fact was mentioned that the tide of public sentiment had turned in the matter of inoculation against rinderpest, and that the demands for serum and veterinarians were consequently far in excess of the available supply. Every effort has been made during the year to meet the difficulty thus created.

The completion of the serum laboratory and of the large new stables at the Alabang stock farm, and the provision of increased facilities for the manufacture of serum at the bureau of science, have resulted in quadrupling the output of antirinderpest serum. All the veterinarians who could be secured at the salaries authorized by law for our service were brought to the islands. The director of agriculture was instructed that he must meet all demands for assistance, so far as the men and serum at his disposal would allow, and must, if necessary, cut other work, no matter how important, in order to keep the necessary funds available. These instructions were reiterated toward the end of the year when the insufficiency of the funds available for the general work of the bureau of agriculture was becoming painfully evident. The only limit which I allowed to be placed upon the work of saving cattle and carabaos was that imposed by the total amount of the appropriation for the bureau. The director of agriculture was warned that he must not incur a deficit, as there was no way in which it could be made good, but when toward the end of the year such a course became necessary in order to avoid a deficit, and after all other means of making economies had been exhausted, veterinarians were necessarily ordered to discontinue traveling except in meeting a few of the most threatening outbreaks.

Immediately after the passage of the annual appropriation bill the situation was saved by the Acting Governor General, who made 20,000 pesos immediately available for continuing the work. Although the increase in the veterinarian force and in the amount of serum available has made possible the obtaining of better results than during any previous year, I am not of the opinion that the best possible results were obtained for the money expended.

In at least one instance a serious epidemic, involving the loss of some 4,000 head of carabaos, occurred when, in my opinion, it might perfectly well have been prevented and would have been prevented by the employment of better administrative methods. After full examination into the causes of this disaster, I deemed a thorough reorganization of the service necessary, and declined to allow the director of agriculture to go on leave until the necessary changes in personnel and in the duties of officers and employees had been effected. It is too soon to state whether these changes will produce the desired result.

Toward the close of the year the serum was allowed to fall off in immunizing power. For this I can find no excuse except the absolute lack of funds with which to pay for experimental animals. Under the provisions of the last appropriation bill, which gave to secretaries of departments and to the governor general certain powers relative to the transfer of funds from one appropriation to another, which had not heretofore been possessed by these officers, such a situation will be impossible in the future.

The outbreak above referred to, which occurred on the island of Siquijor, was by far the most serious one of the year. Another, which occurred in the Cagayan Valley of northern Luzon, was for a time very threatening, but was ultimately checked after a long and stubborn fight. A very large number of minor outbreaks were promptly stamped out. Others were not attacked until they had attained considerable dimensions, owing to transportation difficulties and to the continued lack of sufficient veterinarians and serum, but were ultimately more or less effectively dealt with. On the whole, it can be said that, in spite of many minor and some very important defects, the service of the veterinary division of the bureau of agriculture in the suppression of rinderpest has been decidedly more satisfactory than ever before, and has resulted during the year in preventing enormous losses to the owners of cattle and carabaos in the Philippine Islands.

It is confidently anticipated that further progress will be made during the coming year. Additional veterinarians have been authorized and the serum output will be augmented as rapidly as possible, but it should be remembered that veterinarians after arrival must of necessity spend a large amount of time in becoming familiar with the language and with the peculiarities and prejudices of the people; must gain experience in dealing with rinderpest, which they almost invariably lack; and must learn to travel rapidly and economically before they reach anything like their highest efficiency; while the presence of wild deer which become infected with rinderpest, and of course can not be quarantined, the general indisposition of the Filipino people to protect themselves or their neighbors by the imposition of any local quarantine measures other than those put into effect by the director of agriculture, and other serious obstacles combined, prevent, and will for a time continue to prevent, the achievement of the immediate and complete success in the eradication of rinderpest, which, under more favorable circumstances, might be obtainable.

During the year 22,285 carabaos and 6,469 cattle were inoculated against rinderpest, while 3,322 carabaos and 312 cattle were reinoculated. Only 639 carabaos and 153 cattle are known to have died after inoculation. This, too, in spite of the fact that many of the animals inoculated were badly diseased at the time the serum was administered, and of the further fact that the immunizing power of the serum was allowed to fall off materially toward the close of the year.

[Extract from report of Newton W. Gilbert, secretary of public instruction, Oct. 1, 1910 (Report of the Philippine Commission, 1910, pp. 183–184).]

During the year the efforts of the bureau have been concentrated chiefly upon the fight against animal disease, and at its close the situation showed no little improvement. Fifteen Provinces and 204 municipalities were at one time or another during the year reported as having been freed from rinderpest. In many instances, however, the freedom lasted only a few days, the disease again making its appearance and, upon its extermination, the Province or municipality being again reported clean. It will be seen, therefore, that these figures contain no few duplications. At the close of the year rinderpest was reported in 12 Provinces and 25 municipalities, and unfortunately these are scattered throughout the archipelago, so that the infection is still widespread. The most serious outbreaks occurred in Batangas and Occidental Negros, and the most gratifying work of the year was done in the former Province, where the disease now seems to have been almost entirely eradicated. If it were possible properly to quarantine this Province, there would be little likelihood of another serious outbreak. Conditions in Occidental Negros have also been much improved. With the increase in the price of sugar and the consequent cultivation of a large amount of land which had heretofore been lying fallow, large numbers of animals have been imported into this Province and it is of great importance that rinderpest should not be permitted to get beyond our control there. During the year more than 10,000 animals were reported as suffering with rinderpest and almost 8,000 as having died. Some 68,000 inoculations of antirinderpest serum were made.

The veterinary corps has been increased. On July 1, 1909, 21 veterinarians were on duty. During the year 4 resigned and 1 visited the United States on leave, while 25 new appointees arrived and entered upon their duties, making an average of 39 veterinarians on duty throughout the year. In addition, 8 agricultural inspectors and 6 American and 56 Filipino inoculators were engaged in the work. It has been found difficult to secure skilled veterinarians; the salaries which we are able to pay are not sufficiently large to attract considerable numbers of these men in the United States, and unfortunately among the Filipinos there are no veterinarians. The College of Veterinary Science was opened this year with a view to training Filipinos for this work. The enrollment, however, is, as has been said, very small.

Ten thousand one hundred and forty-five liters of antirinderpest serum were produced during the year, a much larger amount than we obtained in any former year. The production for July, 1909, was 507 and for June, 1910, 1,417 liters. The serum herd was increased from 154 to 524. The percentage of serum obtained from fresh blood for the past four years is as follows: Twenty-two and seven-tenths per cent, 28.6 per cent, 38.38 per cent, 40.28 per cent—a steady increase, which may be attributed to the experience of our laboratory workers and to improved methods and facilities in handling the product.

One of the chief difficulties in the way of the complete eradication of animal disease is the indifference, amounting at times to active opposition, of people and officials to the work. I think the general temper is greatly improved, however, and the improvement will continue as the importance of the work and the sincerity of the government become more generally understood. Valuable assistance in this respect has been given by the Governor General, who has, by suspension or removal from office, awakened several apathetic officials to a full realization of their duty.

To the suppression of an outbreak of disease an effective quarantine is essential. In this work the municipal police have proved quite inefficient, and in so far as has been possible they have been replaced by detachments from the constabulary. The services of the latter have been most satisfactory, but decreased appropriations for that organization have led to a reduction in its forces, and we are unable to obtain these men in anything like sufficient numbers. If the bureau of agriculture is to do effective work in suppressing animal disease, it must be able to call in the services of the constabulary to a far larger extent than has ever before been possible.

[Extract from report of Gov. Gen. W. Cameron Forbes, Nov. 7, 1911 (Report of the Philippine Commission, 1911, p. 20).]

At the beginning of the last fiscal year, after 10 years of continuous effort to control rinderpest, more than half the Provinces were still infected and no noticeable gain had been made. In view of these facts a complete change in the system was made, the use of the rinderpest serum was discontinued, the desultory work throughout the Provinces was made a secondary part of the work, and a large number of employees of the bureau of agriculture were concentrated in the Province of Pangasinan. Maj. Gen. J. Franklin Bell, commanding the Philippine Division of the United States Army, by detailing over 1,200 Philippine Scouts to maintain a quarantine between Pangasinan and the adjoining Provinces, made possible the success of the scheme which depended on cleaning one particular part of the infected territory, keeping this part free from reinfection, and gradually pushing the line of clean territory farther and farther. Starting from the eastern part of Pangasinan, practically the whole Province has been cleaned by this system, and a similar successful campaign has been carried on in the island of Siquijor, which is now entirely free from rinderpest. The intention is to go over the whole country by this method, and, it is hoped, within a few years to rid the entire archipelago of this disease.

[Extract from report of W. Cameron Forbes, acting secretary of public instruction, Nov. 6, 1911 (Report of the Philippine Commission, 1911, pp. 170–171).]

During the past year the chief efforts of the bureau have been given to the rinderpest campaign—about 50 per cent of the entire funds of the bureau devoted to this purpose and the veterinary corps largely increased. At the beginning of the fiscal year 1911 there were on duty 41 veterinarians, 6 American live-stock inspectors, and 56 Filipino live-stock inspectors. On June 30, 1911, there were 47 veterinarians, 1 veterinary pathologist, 1 veterinary entomologist, 56 American live-stock inspectors, and approximately 300 Filipino live-stock inspectors.

The following quotation gives an idea of the rinderpest situation in the fiscal year 1910:

"Fifteen Provinces and 204 municipalities were at one time or another during the year reported as having been freed from rinderpest. In many instances, however, the freedom lasted only a few days, the disease again making its appearance, and upon its extermination the Province or municipality being again reported clean."

After some years of scattered work of this sort, it became evident that no great advance was being made and that some change in method was necessary. In July, 1910, Dr. A. R. Ward, of the University of California, was appointed chief veterinarian and undertook the organization of a systematic campaign against the rinderpest. After exhaustive investigation the conclusion was reached that under the conditions existing in the Philippines, the use of antirinderpest serum was impracticable, and it was discontinued. Following the discontinuance of the use of serum, the effort to control rinderpest was centered upon the object of keeping animals separated from one another and upon detecting the diseased animals, so that they might be placed under restraint in corrals. It also became evident that with the forces available it was impossible to combat the rinderpest in all parts of the islands at the same time. It was, therefore, decided to concentrate the total available force of the bureau of agriculture in the Province of Pangasinan, and to call on the constabulary and scouts for any aid which they could give in maintaining the necessary quarantine. Maj. Gen. J. Franklin Bell, commanding the Philippine Division of the United States Army, appreciating its importance, made possible the work which has so far been done by assigning 1,200 scouts, 41 cavalrymen, and 5 veterinarians for duty with the bureau of agriculture. Owing to the enthusiasm and fine discipline of this force, the bureau of agriculture has been able to maintain an effective quarantine over a large part of the Province of Pangasinan, and has gradually succeeded in wiping out rinderpest from the entire eastern portion of the Province and as far west as Lingayan. A similar campaign was inaugurated in the island of Siquijor, which also has resulted successfully. The difficulty, however, remains that in this country, which is entirely unfenced, if the strict quarantine, which can only be maintained by a military force, is withdrawn, a single infected animal may enter clean territory and reinfect the entire district, leaving the whole work to be done again. Another great difficulty encountered in the effort to suppress rinderpest is the fact that, in spite of its destructive history of hundreds of years, the cause of the malady, the methods by which it is carried, the period at which it is most infective, and the duration of the period of infectivity are still questions to be definitely determined. In order to get some light on these problems the serum laboratory at Alabang was converted into a research laboratory, and the results obtained, which so far have been largely at variance with the principles formerly followed in the Philippine Islands, have been very successfully applied to the work in the field. It was shown from experiments conducted at Alabang that the sick animals cease to be dangerous to others shortly after the diagnostic symptoms are fully developed, and that the most infective period of the disease is in its early stages when the symptoms can not be recognized. As it was impossible, under the conditions prevailing in this country, to determine what animals had been in contact with the diseased animal, in order to slaughter them as well as the sick animal, the system of slaughtering, which has been successful in other countries, was, after a short trial, abandoned as impracticable.

Rinderpest has shown a tendency to spread extensively during the year, especially from central Luzon south toward Manila, in the islands of Leyte, Cebu, and Siquijor, and in the Provinces of Oriental Negros, Surigao, Cagayan, and Isabela. The total number of municipalities infected at the close of the year was 81, as compared to 25 reported at the close of the previous year; but owing to the more effective methods employed for detecting and reporting disease at the end than at the beginning of the fiscal year, it is impossible to judge anything from these figures. However, with the knowledge which has been gained from the experimental work and with the system and effective fighting force which are being daily improved, as a result of experience, it is hoped little by little to eradicate this worst of cattle diseases from the Philippine Islands.

[Extract from report of Newton W. Gilbert, Acting Governor General, Oct. 1, 1912 (Report of the Philippine Commission, 1912, pp. 25–26).]

The rinderpest situation has improved and the quarantine policy inaugurated by the bureau of agriculture has been consistently followed throughout the year. After due consideration it had been decided by the officials in charge that only by means of concentrated quarantine could the rinderpest situation be relieved. By concentrated quarantine is meant a port quarantine to prevent the disease entering the islands from outside and a local quarantine of infected districts until the disease is eradicated. This system involves some hardship on the people and to a certain extent cripples agriculture and commerce by preventing the free movement of animals between the Provinces. The government has endeavored to get the cooperation of the municipal and provincial governments and of the farmers and has succeeded to a large extent. With the aid of the scouts, placed at the disposal of the government by the commanding general, strict quarantines have been maintained in the infected districts. A quarantine fence has been established between the hills and the coast, cutting off from the south the Provinces north of Pangasinan. Pangasinan has been cleaned and the quarantine has slowly fought its way south through the Provinces of Nueva Ecija, Tarlac, Pampanga, and Bulacan. That a measure of success has been achieved is proved by the figures which show a reduction of 47 per cent in the number of municipalities infected, from 64 to 34. The number of reported deaths of carabao and cattle from rinderpest for the year was approximately 3,000, or one-quarter of 1 per cent of all the animals, while in 1902, 625,000 deaths, or about 43 per cent of the animals existing in the islands, were reported. A quarantine against Indo-China and Hongkong has been maintained throughout the year. Practically every time a shipment was allowed in the islands infection resulted. Cattle from Indo-China and Hongkong can now be landed only at Manila, after a three months' quarantine. This measure has been deemed necessary in spite of the constant protests of cattle importers. It is thought that the protection of over 1,000,000 animals now in the islands is of greater importance than further importations.

[Extract from report of Newton W. Gilbert, secretary of public instruction, Oct. 11, 1912 (Report of the Philippine Commission, 1912, pp. 239–240).]

Rinderpest.—Animal disease is now a comparatively small factor in the industrial economy of the islands, but potentially it is a very large factor. During the year only 4,312 new cases of rinderpest were reported among the cattle and carabao, with 2,847 deaths. The census of 1903 states that during the year 1902, 629,176 cattle and carabao died of disease, chiefly rinderpest. The following table shows the known amount of infection at the beginning and end of the year:

Week ending—	New cases per week.[1]	Deaths per week.[1]	Provinces infected.	Municipalities infected.	Barrios infected.
July 1, 1911	254	230	17	64	170
June 29, 1912	23	19	11	34	69

[1] Cattle and carabao.

The comparatively small number of deaths from rinderpest has retarded but little the rapid increase in the herds of carabao and cattle. The percentage of deaths from this source compared to births is almost negligible. This does not mean, however, that our work has ended. If the efforts of the government were to any considerable extent relaxed and the disease allowed to spread, whole Provinces would again be swept clean of their work animals. The existence of disease also hinders capitalists from investing large sums in cattle raising in the Philippines, and the chief work of the bureau will not be ended until rinderpest has been completely eradicated from the islands and all sources of outside infection eliminated.

The method followed in combating the disease was the same as last year—that is, through strict quarantine—and the satisfactory results seem to justify the belief that this is the only feasible method for making headway against rinderpest. Effective quarantines have been possible through the cooperation of the military authorities. The division commander, Maj. Gen. J. Franklin Bell, has placed at the disposal of the government a large number of scouts, who have rendered valuable service. On the last day of the year there were on duty in this work 30 officers and 1,390 enlisted men, belonging to 13 companies of the Fifth, Seventh, and Ninth Battalions of the Philippine Scouts. Not only have the men given splendid service, but their officers have shown enthusiasm, patience, and tact in discharging duties which were often disagreeable, and their cooperation could not have been fuller had they been an integral part of the organization of the bureau of agriculture. Provincial officials and, to a considerable extent, the people in general are coming to appreciate the necessity of quarantines and are cooperating in a measure which makes effective work easier as the campaign progresses.

The following table shows the extent to which disease was prevalent during the last eight days of the year:

	Suspects.		New cases.		Convalescents.		Deaths.	
	Cattle.	Carabao	Cattle.	Carabao.	Cattle.	Carabao.	Cattle.	Carabao.
Pangasinan	....	5	....	6	....	[illegible]	....	1
Zambales	....	[illegible]	....	2	....	4	....	2
Pampanga	....	[illegible]	....	9	....	3	....	5
Rizal	....	[illegible]	....	5	....	[illegible]	....	2
Laguna	....	3	....	2	....	13	....	2
Capiz	....	....	....	1	....	4	....	1
Iloilo	....	[illegible]	....	3	4	20	....	7
Total	....	3	....	2[illegible]	4	6[illegible]	....	20

It is only fair to state that this table is not conclusive. There is, without doubt, some unreported disease, particularly in the northern part of Luzon. From time to time territory adjacent to the foothills of Benguet is infected by animals coming from the north, although every effort is being made to prevent their introduction from this territory until the bureau has had an opportunity to move its force into northern Luzon and stamp out such disease as exists there.

[Extract from report of Newton W. Gilbert, Acting Governor General, Sept. 25, 1913 (Report of the Philippine Commission, 1913, p. 23).]

The campaign against animal diseases, of which the most menacing is rinderpest, has been steadily pushed during the year. At the end 8 Provinces, with 24 municipalities, were known to be infected, a smaller number than at the end of the preceding year, though slightly larger than at one time in the course of the 12 months. Altogether 4,731 cases were reported, with 2,787 deaths, an increase of 419 cases but a decrease of 60 deaths, as compared with the preceding year; the number of both cases and deaths was largest in the third quarter. On the whole, therefore, the situation is not materially changed, although it is, of course, in every way a vast improvement on that of a few years ago. Strict quarantine of infected districts has continued to prove the most effective means of dealing with the problem. At the close of the year a total of 90 officers and enlisted men of the constabulary and 901 of the Philippine Scouts were on duty assisting in the campaign. Their work has been done in an extremely creditable manner. Experience with the introduction of the disease by cattle shipped from foreign ports has proved so unfortunate that quarantines on such shipments, of varying duration and degrees of strictness, have been very generally maintained, and the imports have fallen off materially.

VETERINARY DIVISION.

[Extract from report of Newton W. Gilbert, secretary of public instruction, Sept. 28, 1913 (Report of Philippine Commission, 1913, p. 257).]

During the year the staff of this division has been decreased by 4 veterinarians and 17 American live-stock inspectors, and increased by 14 Filipino inspectors. At the beginning of the year rinderpest was prevalent both in the Visayas and on the island of Luzon. Eleven Provinces were known to have infection in 35 municipalities. Infection was known to exist in the Provinces of Surigao, Capiz, and Iloilo, while on Luzon the disease was confined, so far as was known, to the Provinces of Bulacan, Isabela, Laguna, Mountain, Pampanga, Pangasinan, Rizal, and Zambales. Of these, Bulacan, Capiz, Iloilo, Laguna, Mountain, Rizal, and Surigao were cleaned during the year, but to offset this, the Provinces of Cagayan, Ilocos Norte, Ilocos Sur, and La Union were known to be infected on June 30, 1913. During the year 4,731 cases of rinderpest, with 2,787 deaths, were reported. Seventy-two per cent of the new cases and 70 per cent of the deaths occurred in three Provinces, namely, Pampanga, 1,785 new cases and 1,335 deaths; Zambales, 1,212 cases and 449 deaths; and La Union, 438 cases and 184 deaths. At the time of the greatest scourge of the disease in these three Provinces, there was not the degree of cooperation between the bureau of agriculture and the local officials which is necessary to combat it successfully. It is believed that this condition has been remedied in all these Provinces. In Zambales and La Union, in fact, the disease is almost wiped out.

APPENDIX C.

PROPOSED ACT.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That when any citizen of the United States employed by the Philippine government shall have had ten or more years of continuous, actual, and satisfactory service he may, upon making application to the Governor General of the Philippine Islands, be retired from active service, and when so retired he shall receive for a period equal to the number of years of such satisfactory service an annual compensation equal to two and one-half per centum for each year's active service rendered by him, of the average current pay received annually by him during said period of active service: *Provided*, That the terms of this act shall apply only to employees receiving for ten or more years at the time of retirement an annual salary of not less than six thousand pesos, or a total salary during his service equivalent thereto: *And provided further*, That the payments required under this act shall be made from the treasury of the Philippine Islands or from the Province or municipality paying the salary of the employee at the time of his retirement from the service.

APPENDIX D.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS, EXECUTIVE BUREAU.

COMMITTEE FOR INVESTIGATING THE CONDUCT OF BUSINESS IN THE BUREAUS AND OFFICES OF THE PHILIPPINE GOVERNMENT.

EXECUTIVE ORDER No. 52. MANILA, *July 10, 1913.*

Charles H. Sleeper, director of lands; William T. Nolting, collector of internal revenue; John S. Leech, director of printing; and Clifford H. French, assistant auditor, are hereby appointed a committee for the purpose of investigating the conduct of the business of the various bureaus and offices in the insular government and making report and recommendations on the following points:

1. Any work which was performed by any bureau which was, in their judgment, unnecessary.
2. Duplication of work.
3. Administrative economies, including the more rapid Filipinization of the service where advisable.

The committee will take as a basis the report of the organization committee appointed by Executive Order No. 14, series of 1905, will see how far the recommendations of that committee are now being carried out, and will study further the report of that committee and amend the same if, in their judgment, experience has proved the recommendations of said report faulty in any particular.

All directors and officers of bureaus are directed to assist the committee in any way, give them such information and data as they may require, and such clerical help as may be needed in the conduct of their business.

Whenever the committee is engaged in examining the bureau of which any member is chief, such member shall disassociate himself from the committee during the period of the examination of his own bureau.

The reduction of customs revenues, past and prospective, and the proposed abolition of all export duties rendered necessary a reduction of the current expenses of the government.

It is believed that all bureaus will benefit if they may have an opportunity of taking advantage of improved methods of other bureaus and thus standardizing what is best in the service.

W. CAMERON FORBES,
Governor General.

APPENDIX D.

[Extracts from annual reports of Hon. Newton W. Gilbert, Acting Governor General of the Philippines, 1912. 1913.]

From report of 1912:

At the end of the long dry season great swarms of locusts appeared, especially in the southern islands. The locust question having been brought to the consideration of the legislature by the Governor General, act No. 2121 was passed providing means for combatting this pest by the appointment of provincial locust boards, by making an appropriation for the fight, and by placing the general management and leadership of it in the hands of the director of agriculture. Provinces requesting assistance from the general government have been furnished funds, and it is believed that the fight has been more successful than in previous years. It is the opinion of the undersigned that the plague of locusts can never successfully be handled until methods are found of exterminating the locusts in their breeding places.

From report of 1913:

During the last quarter of the year very severe outbreaks of locusts appeared in eastern and southern Luzon, and at its close 33 out of the 38 Provinces were more or less infested. The work of destruction in the cultivated areas has been pushed to the utmost and has always, within any given place and time, been carried to success, but in some Provinces the condition is so widespread that it must necessarily be a question of months, if not years, before the uncultivated tracts are completely cleared of the breeding swarms which there persist and resist all regular measures of control. There has been on the whole an increasing degree of cooperation on the part of the local authorities and the people in the necessary work, though it sometimes imposes appreciable inconvenience or even hardship on the latter. The experiments with bacilli parasitic in the migratory locusts, while very successful in the laboratory, have not so far proved of much practicable value in the field. It is hoped that further research will result in the discovery of a really effective remedy.

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64th Congress } SENATE { Document
1st Session } { No. 243

A PERMANENT TARIFF COMMISSION

AN ADDRESS

DELIVERED BEFORE THE MERCHANTS' ASSOCIATION OF NEW YORK, ON DECEMBER 9, 1915, RELATIVE TO THE ESTABLISHMENT OF A PERMANENT TARIFF COMMISSION

By

HON. THOMAS P. GORE
U. S. SENATOR FROM OKLAHOMA

PRESENTED BY MR. O'GORMAN
JANUARY 14, 1916.—Ordered to be printed

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

A PERMANENT TARIFF COMMISSION.

[Address delivered by Senator Thomas P. Gore before the Merchants' Association of New York, Dec. 9, 1915, on the establishment of a permanent tariff commission.]

Senator Gore said, in substance:

The interchange of ideas has been as serviceable to progress and civilization as the exchange of goods, wares, and merchandise. On this occasion I expect to import more than I export; hence I can not hope for a favorable balance of trade. We are apt to forget that peace hath her victories no less brilliant and no less beneficent than the reeking triumphs of war. We may differ as to the necessity for naval and military preparedness, as to the extent of preparedness essential to our defense and security. We shall not differ in the belief that America should not arm for conquest; that she should not pursue military ambition; that she should not seek martial strength and glory for their own sake. Those tempting baubles ought to be waived aside more often, if need be, than Caesar put aside the crown. That our permanent interest, that our true destiny lies in the paths of peace no one will challenge. There are certain ideals which America has the right to cherish, aspirations which she has the right to pursue and promote. America has the right to aspire to become the industrial, commercial, and financial primate of the civilized world. This is the dazzling destiny I would set before your eyes. It is not a vain vision. It is a rational hope. It is an ideal which can be naturalized in the realm of the real.

Nature has done her share. She has lavished her bounties. We must do our share; we must discharge our duty. We must conserve and develop our resources. We must extend our industry and our commerce, must promote improvement at home and peaceful expansion abroad. We deplore the calamities which have befallen our friends across the sea. We would speed the return to them of peace, prosperity, and civilization; but we owe it to ourselves now and always to extend by the arts of peace, not by arms of war, our foreign commerce, to multiply and widen our foreign markets.

The advantages of foreign commerce are not limited to the mere profits upon exports. Foreign commerce distributes risks, diminishes shocks and losses. It stabilizes wages, profits, prices, and business conditions at home.

Of all commercial undertakings international trade involves the fiercest competition. Competing goods from various countries meeting in a common market engender competition that is cruel, merciless, unrelenting. Quarter is neither asked nor given. This means the survival of those who are fittest to compete, who are best prepared for this kind of pacific warfare. Such preparation depends upon knowledge of competitive conditions, the facts and factors which make competition possible or impossible. These conditions include cost of production, cost of distribution, wages, prices, freight rates, and taxation, direct and indirect, domestic and foreign. Competitive conditions are affected by taxes levied in other countries as well as in our own.

The larger business concerns may be able in a way to ascertain these competitive conditions for themselves. The smaller concerns have neither the means nor the facilities. They ought to be made a matter of common knowledge. This function requires a national agency.

This is the paramount reason why I favor an international trade and tariff commission. Those of us who favor such a commission might adopt as our motto "Fiat Lux"—"Let there be light." This is the supreme if not the sole object of such a commission; to ascertain those facts and factors which make up competitive conditions and from which emerge the economic laws that govern trade and commerce.

I have always voted for a tariff commission. When our Republican friends were pressing such a measure, were praying for light, I could not find it in my heart to refuse to touch the button. Even Democrats, with all their fond faith in dreams, can not afford to be entirely indifferent or neutral in respect to facts.

Everyone's attitude in regard to a tariff commission must depend upon his answers to the following questions:

First. Should facts have any influence in the determination of articles to be taxed and the rate of duties to be imposed?

Second. Is a tariff commission a better agency to ascertain the facts than a congressional committee?

He who answers these two questions in the affirmative must favor a commission. He who answers either in the negative must oppose a commission.

Burke said, "Statesmanship is the science of circumstances." Few will deny the potency of circumstances, even though they do not own their sovereignty. Few will deny that facts are the best touchstone upon which to try the value of theory. Few will insist that taxable articles can be selected by intuition and duties best determined by inspiration.

There are two opposing classes, however, who hold fast to this theory. One class is the ultra protectionist, who would make duties arbitrarily high, who would insist upon a maximum of protection, who does not care to be vexed with the consciousness that duties exceed the difference between the cost of production at home and abroad. The other class is the ultra free trader, who would demand the immediate repeal of all duties and the immediate transition to free trade without calculating the consequences either upon private business or public revenues. These classes are limited in number, but they are both dogged and dogmatic, and it must be owned that the jewel of consistency blazes upon their brows.

Between these two there are two larger classes, two larger sections of opinion, two distinct schools of thought. One is made up—I speak with poetic license—of Progressives and Republicans, who believe that tariff rates should be graduated to cover the difference between the cost of production at home and abroad. Facts are, of course, indispensable to the application of this theory. It would be utterly visionary without an intimate knowledge of conditions prevailing in all industrial and competing countries.

Even a theory has a right to a fair trial, when it is to be tried at all. The other class, the Democrats, oppose this theory. They regard it as an impossible standard. The cost of producing the same article varies in all countries. It varies in different parts of the same country. It varies in the same part of the same country. It varies in the same establishment. This may be regarded as an "inconstant variable" which could not be applied in practice.

The Democrats have their own theory. It is their contention that no article should be taxed higher than the lowest rate that will yield the largest revenue. Below this rate they allow variations in accordance with the circumstances and the character of the article. This standard is easy to define, but it is difficult to apply. To be successfully applied would perhaps require the widest information of any rate-making theory. Many Democrats oppose a tariff commission because they deem the information unnecessary. It is necessary. A knowledge of tariff rates and changes, past and present, at home and abroad, alone can reveal those variations, tendencies, and relations which would make it possible to fix duties at the lowest point that would yield the largest revenue. Of course, Republicans insist that this standard is not possible, even if desirable, and not desirable, even if possible. I waive those partisan controversies. Whatever theory be true, facts are essential to its application and success. This is the point.

Is a tariff commission a better agency for the ascertainment of the facts than a congressional committee? The commission would be constituted more largely of experts and trained economists. It would be less liable to change with the violent vicissitudes of party politics. It would be less affected by the bias and prejudice of partisan controversy. It would be virtually in continuous session. It could study and record changing conditions while they are changing. It could accumulate and systematize a vast mass of data. It could make continuous observations over a long period of tendencies and relations between varying rates and their effects. It could render a number of services and perform a number of functions to which a congressional committee is not adapted. It is no disparagement to say that a commission is better suited than a committee for the conduct of such investigations, the collection of details, and the collation of facts for the analysis and enlightenment of such a committee. It is not necessary to say that the old system is the worst system. It is only necessary to prove that it is not the best. To whom has the old method proven satisfactory? Has it been satisfactory to the advocates of high tariff, to the advocates of low tariff? Has it been satisfactory to the country? Has it established and maintained industrial peace and commercial progress and prosperity?

The most elaborate and colossal works of pure fiction ever produced in America have been the tariff hearings before the Finance Committee of the Senate and the Ways and Means Committee of the House. As works of fancy they are unrivaled by the "Rape of the Lock." As works of the imagination they are unapproached by "Paradise Lost." They have all the vices of ex parte testimony on the part of interested witnesses animated by alternating hope and fear. Every temptation to misstatement is present. Nearly every obligation to truth is absent save conscience alone—and their consciences are under such perfect control.

The Secretary of Commerce, with the approval of the administration, has asked an appropriation of $100,000 to enable the department to make investigations abroad as to the costs of production, rates of wages, and other competitive conditions which might be serviceable in the making of tariff rates. It may be said, therefore, that the administration is at least partially committed to the proposition that a congressional committee is not the best, or at least is not the only agency that ought to be charged with such investigations. Would not a commission be preferable to the Department of Commerce, less liable to sudden political changes and to the influence of partisan dogmas and predilection?

I have already mentioned, and need not discuss, the ordinary powers and duties with which all friends of a commission would expect to see it charged and invested, such as the ascertainment of output, supply, cost of production, distribution of wages, freight rates, taxes, etc. But it may be asked if these facts were all assembled, would not much still remain unknown. Undoubtedly true; but we must not refuse to learn anything because we can not know everything. The wise men of Greece would have been unwise had they refused to pursue investigation of nature merely because the noontide of science was some 2,000 years ahead of them. Every strip of territory transferred to the known from the unknown is a conquest. Every fact captured by certainty from uncertainty is a triumph for truth. Every problem solved is a service to civilization.

I now reach perhaps a point of departure. We doubtless all agree as to the powers and duties and services already enumerated. I would not stop there. Our Federal system of revenue is a dual system. It consists of duties on imports and internal-revenue taxes. These are the two halves of a whole; they are the two sides of a shield. They are the two counterparts of the arch. One must be studied, must be understood, must be changed with reference to the other. I would have the commission not only investigate tariff rates and tariff changes in this and other countries, but I would also have it investigate internal-revenue rates in this and other countries. These taxes are an ingredient of price. They affect competition. To illustrate: No one can make a comparison or draw a conclusion in respect to sugar prices in this country and Germany without taking into account the consumption duties on sugar in that country. I need not multiply these instances. As a rule, Great Britain imposes an internal-revenue tax corresponding with the custom duty on a given article. This policy has not been adopted by other countries. This increases the difficulties and uncertainties of comparative statistics. The internal-revenue commission, of which Mr. David A. Wells was chairman, did much to illuminate the subject and to establish our system on a more rational basis.

For my own part I would not stop here. The operation of our fiscal system involves two activities: The receipt of revenues and the expenditure of revenues. They bear, of course, the most intimate relation to each other. They can not be separated either in theory or in fact. The commission that has a constant eye on all the sources of revenue might well be constituted a permanent board of economy and efficiency. It could do much to eliminate waste and the duplication of services in the various departments. The Cleveland board of economy and efficiency justified its existence. It ought not to have been abolished. I know there is a popular prejudice against the word efficiency, but those who succeed in business must have as their keynote "efficiency first." Such a commission would be a sort of clearing house where the ideas and methods of industrial efficiency could be assembled and distributed and made a part of the common intelligence-capital of the country.

Nor would I stop here. The Government has done much to regulate commerce, to restrict trade, to prohibit monopoly, to penalize unfair practices. These measures were essential to industrial and commercial liberty. In some instances the Government may have of necessity harrassed industry and commerce. The Government ought to do whatever it can to promote industry, to stimulate commerce, to facilitate business, without sacrifice to the rights or interests of others. Justice should be the boundary of governmental activities.

Congress has felt obliged to enact laws to protect the people against domestic monopolies and combinations. Might it not be well or may it not become necessary for Congress to enact laws to protect the people and to protect dogmatic business against foreign cartel and monopolies? The facts upon which such regulations should be founded if necessary could be assembled by an international trade and tariff commission.

I do not feel so great a dread as some profess in regard to dumping as a consequence of the present war, but if real dumping be a real danger, it should be promptly met and effectually restrained. If a properly equipped commission were now in existence it could do much to ascertain whether the dread of dumping be groundless or not.

If its fears be unfounded on fact, the commission could dispel them now. If they be founded on facts, the commission would be in a position to enlighten the country on the subject and to enable Congress to avert the danger and allay apprehension on the part of the business community.

Everyone must regret the disappearance of the American flag from the Seven Seas. Everyone must desire to see the reestablishment of the American merchant marine. We ought to ascertain the causes of its former prosperity and of its sudden decline. We ought to ascertain and agree upon the means best calculated for its restoration. That American capital is content with the profits of ocean traffic is proven by the fact that much American capital is invested in ships flying foreign flags. This suggests that there may be a self-imposed handicap and that the difficulties may not be irremediable. In any event I would make this a sort of international trade commission. I would direct it to investigate shipping problems and recommend ways and means for the revival and relaunching of our mercantile navy. Until some other authority be charged with this duty, it might contribute much to this consummation so devoutly to be wished.

You suggest that I would overload the commission. I answer that there is a growing prejudice against the establishment of commissions. It would be wise to federate as many just reasons as possible for the establishment of this one. But since we agree in principle and purpose, we shall not quarrel as to details. The real question is not whether a tariff commission will be established or will not be established. The question is rather whether the Democrats will establish it now or leave it for the Republicans to establish hereafter. Such a commission is an inevitable step in the evolution of international commerce. There are few creatures that thrive better in the darkness than in light—man is not among them.

One word touching an important detail. The commission should consist of an even number of commissioners—say six. Not more than three of these should be of any one political party. To make the number odd you impeach in advance either its capacity or its sincerity. It would indicate that an odd number is necessary to cast a deciding vote, to avoid a deadlock. If the commission's work is to be just and scientific, it will generally be unanimous. If its work is to be unscientific and partisan, let it divide half and half and thus unmask its incompetency and unfitness. An even number would be a mark of confidence and would be an added assurance of its fitness and efficiency.

The business men of America have a right to ask the establishment of such a commission at the hands of Congress. It is not flattery, but justice, to say that they have contributed their full share to the development, progress, and prosperity of the New World. It is not prophecy, it is simply coming events casting their light before, to say that they will contribute their full share to that splendid destiny which the future holds in reserve for this Republic.

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64th Congress } SENATE { Document
1st Session } { No. 245

INTERNATIONAL PEACE TRIBUNAL

LETTER

ADDRESSED TO

SENATOR JOHN F. SHAFROTH

BY

OSCAR T. CROSBY

OF WASHINGTON, D. C.

RELATIVE TO

S. 2710

A BILL TO ENCOURAGE THE ESTABLISHMENT OF AN INTERNATIONAL PEACE-KEEPING TRIBUNAL AND, PENDING SUCH ESTABLISHMENT, TO INSURE THE MILITARY PREPAREDNESS OF THE UNITED STATES OF AMERICA

PRESENTED BY MR. SHAFROTH
January 17, 1916.—Ordered to be printed

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

INTERNATIONAL PEACE TRIBUNAL.

WASHINGTON, D. C., *January 14, 1916.*

Hon. JOHN F. SHAFROTH,
United States Senate.

MY DEAR SENATOR: Permit me to lay before you herewith a few notes on Senate bill 2710, recently introduced by you.

The title of the bill declares its objects. They are, first, to encourage the establishment of an international peace-keeping tribunal, and, second, pending such establishment, to insure the independent military preparedness of the United States.

Numerous other pending bills cover the matter of national defense by arms alone—by independent and competitive arms.

This bill seeks to combine provisions for such armaments, made necessary by existing international relations, with a declaration in favor of that form of national defense which we enjoy as individuals, as tribes, as provinces, as federated States. It is defense by subordination to central authority.

Specific plans for organizing an armed tribunal appear in the bill.

If our great parliament will begin, we may feel sure that, throughout the world, their example will be followed in the study of such an organization.

Simultaneous discussion by responsible parliaments of identical propositions relating to an international tribunal—there lies our hope of progress toward a certain policy in this great matter.

We may find that no relief is possible from the present system of competitive armaments. Very well. Then we shall keep our powder dry, our swords sharp. But we should not pessimistically conclude against the plan of introducing order among nations. The way is shown by the conquests of that relative peace which exists between groups of which each nation is composed.

The second object is sought to be covered by a lump-sum appropriation for defense by land and sea. The amount of the appropriation is to be reached by further study. The appropriation, when made, is to be expended under the direction of a single commission.

It is fully understood by those interested in the bill that our present organization of congressional committees and of executive departments does not lend itself to this proposed arrangement. But, believing the plan a good one, the bill is made to set it forth.

This form of appropriation bill, however, is chosen chiefly as a "carrier" for the provisions of section 3. That section may appear as a proviso in any military or naval bill. It is through this section that we may "encourage the establishment of an international peace-keeping tribunal."

This is done by providing that any unexpended balance of the appropriation shall be returned to the Treasury if, at any time before the expenditure be complete, there shall have been established, with our cooperation, an international tribunal organized substantially along the lines shown in a tentative draft of articles of agreement, which then follow.

Finally, in section 4, Congress declares its acceptance of the principle that all international disputes threatening war shall be determined by a competent tribunal; and in section 5 the President is requested to initiate negotiations looking to the establishment of such a tribunal.

The terms of the enactment are dry enough. There is little likelihood that such a tribunal as is contemplated can be established before the appropriation made by this Congress shall have been expended. Perhaps the ships we are now to build will have rotted ere the "great day" come. But if we continue, in fearless optimism, to make this proviso and to discuss these propositions, the harvest time will come—or, we shall have definitely learned that international peace is not realizable.

In the past men drank to the "great day" when their ships should sink other ships and drown many men. The "great day" we now mean is that in which these competitive engines of destruction shall be sunk, guiltless of death, or in small part, they may be retained by the tribunal for use in coercing a possible rebel or in making war against a power outside the Union, if any should exist.

The inspiration of the bill is found in the conviction that an efficient mechanism of international control can be established, and that until it is established we must be prepared to kill our enemies.

Let us not mince words. We are not ready for the beatitudes. Having no judges set over us, we intend to stand for our own views of our own rights by our own strength in arms. That is the practice of "righteousness" among independent sovereigns, whether those "sovereigns" be isolated savages or great States. That is the object of every military establishment. Whether we call it "defensive" or not matters little.

But we say to all the world through this enactment, "We prefer peaceful settlement of our differences with you. But if you will not have it so, we must arm ourselves, even as you are armed. It is for you to determine whether or not there shall now be created an armament, perhaps greater than any the world has ever seen. If created, though only with defensive intent, it must upset every existing European formula for the 'balance of power.' And perhaps it may become a new menace to the world's peace. Will you help to avoid militarism by making it unnecessary for us to arm against you?"

And how effectively is this said, in the very same breath which makes a military appropriation bill.

Those who now, regretfully, are to cast their votes for some increase of such expenditures may feel that in this proviso they have set up a standard of revolt against militarism all the world over. To this standard men of all nations may rally in their efforts to hasten the great day.

Just now we are contemplating a direct increase of the burdens upon our own poor. Indirectly, by reason of the inevitable competition in armaments, this would result in burdening more heavily the backs of the poor in all lands. By this enactment you will take the first positive official step toward a lightening of those burdens.

Even the rampant "militarist," may be glad to leave hope to the world—hope that strong men may be free to devote themselves to the vast social problems presented within every nation. Such problems transcend in real importance those that now set nations at war. This freedom can be attained only in one way. It is that which has been followed by individuals, tribes, Provinces, federated States in their struggle toward relative peace within national limits. The method has been uniform—inexorably so.

It consists in setting up over ourselves, by something contributed out of ourselves, an authority that may react against ourselves. That authority must judge our acts, and it must keep peace before judgment and after judgment. To this end it must be armed. It must be armed more strongly than any probable combination of the units or groups subjected to its action.

This armed authority rests indeed upon public opinion. But it is also a necessary organ for enforcement of the majority opinion. It would not be needed if "public opinion" were unanimous throughout the body which is to be governed. But it is not unanimous. It is diverse. Minorities urge their opinions.

Without an instrument of force these divergencies, each claiming to be "public opinion," would produce chaos.

A vast majority of individuals in every society are willing to accept the decisions of established authorities without thought of the force behind them. They are generally accepted even when not in conformity with the prevailing opinion. They are accepted because the majority believes that order is the true objective of courts—that justice, in its highest sense, is obedience to tribunals interpreting law, or, Solomon-like, settling disputes, unaffected by law.

But, in cases of extreme excitement, even these majorities tend to anarchy. And, at all times, there are minorities whose lives are almost a continual rebellion against established order. From these two causes spring soldiers, policemen, constables. And the very essence of their usefulness lies in the fact that they are centrally controlled.

Such a control of the groups called sovereign States is outlined in the bill. They are to give up navies—the hip-pocket pistols of nations. This deadly arm will be reserved to the policeman. And they are to give up land fortifications and land forces, as far as those are set up for international conflicts.

Thus yielding up their jungle independence, nations will exchange an illusory freedom, based on competitive hip-pocket arsenals, for a surer freedom, based on the justice of the peace and his constable. Thus secured, national energies may be turned to the great social problems confronting us. It is this same freedom by subordination which permits us to seek life, liberty, and the pursuit of happiness in our private lives.

And the ultra pacificists, those who hope that nations may be ruled entirely by love of order, who say that this love of order will render armaments unnecessary, they also may well support the spirit, if not the letter, of section 3.

Powerless now to put the world on a basis of peace without force, they may, they will, indorse a declaration by this Government that it is striving to eliminate at least one force system—that of competitive arms. They will not indorse the idea that an international tribunal must have central force behind it as sanction for its decrees.

Instead of a reference to an armed international tribunal they would have reference to a tribunal (or tribunals) resting solely on "public opinion," without an instrument of enforcement.

If you should adhere to the contrary idea—that of the bill—they, nevertheless, should welcome a declaration which puts hope of better things in every heart.

Again there are those who suggest various halfway measures lying between no force and a sufficient central force. Their views are not adopted by those who urge this bill. But they, also, may support a measure which moves toward the goal that is implied, though not expressed in their various programs. True, their compromises are based on the retention of competitive national forces. But for the most part this retention is itself based on the pessimistic theory that nothing better can be done. If you, the legislators of our great Republic, will but courageously attack the problem of international organization, they will be partially relieved of their pessimism and may then hopefully modify their programs.

Unfortunately upon none of these compromises can we predicate a cessation or even a diminution of competitive armaments, such as section 3 provides. That result can be obtained only through the beatitudes of the ultra pacificists, or the more familiar judge-and-police theory of this bill.

Those who, though sympathetic with the general intent of the measure, are yet cautious in their commitments, will observe that even the moral engagement made is conditioned upon the establishment of an institution to which our own Government must consent. This protects against any surprise or any misconception. It even permits radical modification.

Congress may desire to give expression to the vow for peace that is contained in the bill without espousing either the ultra-pacificist theory of forceless sanction, or the central-force theory set forth in the tentative draft of articles of agreement. In such case section 3 might be modified to provide for the return of unexpended balances "when there shall have been established with the consent of the United States a tribunal (or tribunals) competent to secure international peace without international war."

In the judgment of those favoring the bill as it stands, this form would, in application, mean the same thing as the present form, but it might save the feelings of those who oppose force.

The serious objection to the adoption of such a compromise phrasing lies in this, that it cuts out discussion of the tentative draft.

Simultaneous discussion in responsible parliaments of identical propositions, for an armed international tribunal, that is one of the objects of this bill. And how vastly important if we are to know "where we stand" on this great question!

Only by consideration of specific provisions for the great compromise can we know whether or not the world is at all ready for the great day. Perhaps in such discussion it may even appear that the pacifists are right. Or it may appear that the world actually prefers its Waterloos, its Gravalottes, its Marnes, its Trafalgar Bays, to an ordered life of industrious peace. Very well; let the discussion go on. Only by discussion shall we know. Let us find that we agree on one article and widely differ on another. Very well; out of it all we shall find the mind of the nation. Definite discussions in responsible parliaments! What a step forward from the hazy harangues of irresponsible dreamers, or the brutal "no" of the heavy conservatives!

Will you take up this task? Will you, in the seats of power, decide that this great question shall be studied "without skepticism and without cynicism?" Can the precious hours of a great parliament be better spent than in discussing means of saving thousands of lives, and thousands of fortunes? Can any man, vested with power, refuse to consider the fate of his lowly brothers in all lands? Let us remember that while war may be, for some, a glorious, though tragic pastime, its main meaning is, for the poor, a continuing sacrifice of those comforts which we call necessities; of those little superfluities which lead upward from the dull forms of animal life.

And in the making of war, these humble brethren, scarce knowing why they die, are led to mutual slaughter. Peasant kills peasant. Both sink to inglorious darkness, while poverty grips their unoffending women and unconscious babes.

What has been said above refers to the period beginning after the close of the present war. Concerning the existing conflict we shall probably not be able to intervene in any direct and controlling manner.

But the adoption by us of section 3 of this bill would probably constitute the best help, the most suggestive message which could be given by us to belligerents now confused by passion yet surely seeking some way out of the chaos into which they have fallen.

Very respectfully, yours,

OSCAR T. CROSBY.

64TH CONGRESS } SENATE { DOCUMENT
1st Session } { No. 246

POWER OF THE FEDERAL GOVERNMENT OVER DEVELOPMENT AND USE OF WATER POWER

REPORT

OF THE

SUBCOMMITTEE TO THE COMMITTEE ON THE JUDICIARY UNITED STATES SENATE

OF THE

SIXTY-SECOND CONGRESS
SECOND SESSION

PURSUANT TO

S. RES. 44

DIRECTING THE COMMITTEE ON THE JUDICIARY TO REPORT TO THE SENATE ON THE POWER OF THE GOVERNMENT OVER THE DEVELOPMENT AND USE OF WATER POWER WITHIN THE RESPECTIVE STATES

TOGETHER WITH THE

VIEWS OF SENATORS CHARLES A. CULBERSON AND JAMES A. O'GORMAN, MEMBERS OF THE COMMITTEE ON THE JUDICIARY

PRESENTED BY MR. SHIELDS
JANUARY 17, 1916.—Ordered to be printed

WASHINGTON
1916

UNITED STATES OF AMERICA
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SUBCOMMITTEE OF THE COMMITTEE ON THE JUDICIARY TO CONSIDER SENATE RESOLUTION NO. 44.

KNUTE NELSON, of Minnesota, *Chairman.*
ELIHU ROOT, of New York.
WILLIAM E. CHILTON, of West Virginia.

4

POWER OF THE FEDERAL GOVERNMENT OVER NAVIGABLE AND NONNAVIGABLE STREAMS

REPORT OF THE SUBCOMMITTEE OF THE COMMITTEE ON THE JUDICIARY, UNITED STATES SENATE, PURSUANT TO S. RES. 44, A RESOLUTION DIRECTING THE COMMITTEE ON THE JUDICIARY TO REPORT TO THE SENATE ON THE POWER OF THE GOVERNMENT OVER THE DEVELOPMENT AND USE OF WATER POWER WITHIN THE RESPECTIVE STATES

POWER OF THE FEDERAL GOVERNMENT OVER THE DEVELOPMENT AND USE OF WATER POWER.

Mr. Nelson, from the subcommittee of the Committee on the Judiciary, submitted the following report, to accompany Senate resolution 44:

To the Committee on the Judiciary:

Your subcommittee, which was directed to report on the following resolution:

> *Resolved*, That the Committee on the Judiciary of the Senate be, and it is hereby, directed to report to the Senate, at as early a date as possible in the next regular session of Congress, upon the power and authority of the National Government over the development and use of water power within the respective States, and especially:
>
> First. Has the National Government any authority to impose a charge for the use of water power developed on nonnavigable streams, whether State or interstate?
>
> Second. Has it any authority in granting permits to develop water power on a navigable stream to impose and enforce conditions relating to stated payments to the Government, regulation of charges to consumers, and determination of the right to make use of such developed power?
>
> Third. Has it authority in disposing of any of its lands, reserved or unreserved, necessary and suitable for use in connection with the development or use of water power on a nonnavigable stream, whether State or interstate, by lease or otherwise, to limit the time for which such development may continue, or to impose and enforce charges for the use and development of such water power, or to control and regulate the disposition of such water power to its consumers?

have considered the same and report as follows:

The interrogatories embraced in the foregoing resolution involve the rights of riparian owners, the rights of the States, and the rights of the Federal Government in the navigable and nonnavigable streams and watercourses of the country. A solution and understanding of these several rights will tend to answer and solve the questions propounded.

NAVIGABLE STREAMS.

The rule of the common law, that only those streams are held navigable in which the tide ebbs and flows, and only so far as such ebb and flow, has not been adopted and does not prevail in this country. With us the question of navigability is one of fact in each case. If a stream can be used for commerce or trade, in any form, to any substantial extent, even for the floating of rafts of logs or lumber, it is held to be a navigable stream. (The *Genessee Chief*, 12 How., 443; the *Daniel Ball*, 10 Wall., 557; the *Montello*, 20 Wall., 430; Barney *v.* Keokuk, 94 U. S., 324; Waterpower Co. *v.* Water Commissioners, 168 U. S., 349.)

Most of our streams and watercourses are, in fact, more or less navigable in some of their reaches, and the nonnavigable portions serve as feeders for, and are so connected with, the navigable sections that it is difficult and scarcely practicable to apply a separate rule for each. This must needs be so where ample regulation of the navigable section can only be secured through regulation of the nonnavigable section. In such cases, for the purposes of interstate commerce, the Federal Government has full regulative power over the entire stream, the nonnavigable as well as the navigable sections.

In U. S. *v.* Rio Grande Irrigation Co. (174 U. S., 690), the Supreme Court, in passing upon certain statutes relating to the use of water for mining and irrigation purposes, makes this declaration:

> To hold that Congress, by these acts, meant to confer upon any State the right to appropriate all the waters of the tributary streams which unite into a navigable watercourse, and so destroy the navigability of that watercourse in derogation of the interests of all the people of the United States, is a construction which can not be tolerated. It ignores the spirit of the legislation and carries the statute to the verge of the letter and far beyond what under the circumstances of the case must be held to have been the intent of Congress (p. 706–707).

TITLE OF THE STATES IN THE BEDS AND WATERS OF NAVIGABLE STREAMS.

The several States of the Union are each primarily the proprietors of, and have the sovereignty over, the beds and waters of the navigable streams and watercourses within their respective borders, subject only to the rights of the Federal Government under the interstate commerce clause of the Constitution (par. 3, sec. 8, art. 1), and to the rights of the Federal Government as owner of the riparian lands (par. 2, sec. 3, Art. IV), which rights will hereafter be referred to and enlarged upon.

In the case of Martin *v.* Waddell (16 Peters, 367), where the question of tidelands and tidewaters was involved, the Supreme Court of the United States makes this clear and comprehensive declaration:

> For when the Revolution took place the people of each State became themselves sovereign; and in that character hold the absolute right to all their navigable waters, and the soils under them, for their own common use, subject only to the rights since surrendered by the Constitution to the General Government.

The same doctrine was laid down by the court in the case of Pollard *v.* Hagan (3 How., 212), and it was held to apply to the newer States in as full a measure as to the original States of the Union. In this case the court concludes its opinion as follows:

> By the preceding course of reasoning we have arrived at these general conclusions: First. The shores of navigable waters and the soils under them were not granted by the Constitution to the United States, but were reserved to the States respectively. Second. The new States have the same rights, sovereignty, and jurisdiction over this subject as the original States. Third. The right of the United States to the public land and the power of Congress to make all needful rules and regulations for the sale and disposition thereof conferred no power to grant to the plaintiffs the land (tidewater land) in controversy.

In the case of Barney *v.* Keokuk (94 U. S., 324), Justice Bradley declares that the correct principles were laid down in the foregoing cases, and then adds:

> These cases related to tidewater, it is true; but they enunciate principles which are equally applicable to all navigable waters.

The rule laid down in the foregoing cases is reaffirmed and amplified with the citation of numerous authorities in the case of Shively *v.* Bowlby (152 U. S., 1).

RIPARIAN TITLE.

It is the rule of the common law that a grant of land upon the borders of a navigable stream carries the grant only to the high-water line, while a grant of land bordering upon a nonnavigable stream carries the title to the center of the stream, subject to the public easement in the water of the stream. While this is the rule of the common law, the Supreme Court of the United States, in the case of Hardin *v.* Jordan (140 U. S., 371), has determined that the limits and extent of the riparian ownership is governed by the law of the State in which the land is situated. Justice Bradley, who delivered the opinion in this case, after discussing the question and citing numerous authorities, concludes as follows:

> We do not think it necessary to discuss this point further. In our judgment the grants of the Government for lands bounded on streams and other waters, without any reservation or restriction of terms, are to be construed as to their effect according to the law of the State in which the lands lie (p. 384).

The case of Shively *v.* Bowlby, heretofore cited, approves of and adheres to this rule, and the following cases indorse and adhere to the rule: Barney *v.* Keokuk (94 U. S., 324), St. Louis *v.* Myers (113 U. S., 566), Packer *v.* Bird (137 U. S., 661), St. Louis *v.* Rutz (138 U. S., 226), Mitchell *v.* Smale (140 U. S., 406), Grand Rapids *v.* Butler (159 U. S., 87), Water Power Co. *v.* Water Commissioners (168 U. S., 349), Kean *v.* Calumet Canal Co. (190 U. S., 452), United States *v.* Chandler Dunbar Co. (209 U. S., 447).

The rule of riparian ownership as to grants of land bordering on streams is diverse in the various States. Some States hold that the grant extends only to high-water mark; other States hold that it extends to low-water mark; while another class of States—and perhaps the most numerous—hold that the grant extends to the middle of the stream, subject to the public easement in the water of the stream. But whatever may be the law in this respect as to the effect of the grant, it only relates to the proprietorship in the banks and bed of the stream and not to the ownership of the water in the stream.

In those States which hold that the title of the riparian owner only extends to the high or low water mark the title to the bed of the stream is deemed to be in the State, and whether the title to the bed of the stream is in the riparian owner or in the State, in either case the sovereignty over and the paramount title to the water of the stream is deemed to be in the State, but it holds it not absolutely, but in trust for all lawful public uses, and in subrogation to the rights of the Federal Government.

PROPRIETORSHIP AND CONTROL OF THE WATER IN STREAMS.

While the riparian proprietor may be the absolute owner of the bed of the stream, he has no such proprietorship in the water of the stream. The water is a movable thing, and as to that he has only a usufruct. His rights in the water are subject to the sovereignty and control of the State, to the rights of the other riparian owners, and to the public easement or use. Lord Chief Justice Hale in his

De Juris Maris (Hargrave, p. 6), in the quaint law language of those days, states:

> Though fresh rivers are in point of propriety, as before, prima facie of a private interest; yet, as well fresh rivers as salt, or such as flow and reflow, may be under these two servitudes, or affected with them—viz, one of the prerogatives belonging to the King, and another public interest, or belonging to the people in general.

Commenting on a case in which the riparian owner claimed the title up to the thread of the stream in the Severn River as against the King, Lord Hale says (Hargrave, p. 36):

> But though the subject may thus have the propriety of a navigable river part of a port, yet these cautions are to be added, viz: First, that the King has yet a right of empire or government over it in reference to the safety of the kingdom and to his customs, it being a member of a port, prout inferius dicitur; second, that the people have a public interest, a jus publicum, of passage and repassage with their goods by water and must not be obstructed by nuisances or impeached by exactions, * * *. For the jus privatum of the owner or proprietor is charged with and subject to that jus publicum which belongs to the King's subjects; as the foil of an highway is, which though in point of property it may be a private man's freehold, yet it is charged with a public interest of the people, which may not be prejudiced or damnified.

Sir J. Leach, vice chancellor, in the case of Wright *v.* Howard (1 Simons & Stuart's Reports, 203), an English case in chancery, decided in 1823, explains the right of a riparian as follows:

> The right to the use of the water rests on clear and settled principles. Prima facie, the proprietor of each bank of a stream (not tidal) is the proprietor of half the land covered by the stream, *but there is no property in the water.* Every proprietor has an equal right to use the water which flows in the stream, and, consequently, no proprietor can have the right to use the water to the prejudice of any other proprietor. Without the consent of the other proprietors, who may be affected by his operations, no proprietor can either diminish the quantity of water, which would otherwise descend to the proprietors below, nor throw the water back upon the proprietors above.

Chancellor Kent, in his Commentaries, states the common-law rule in these words:

> Every proprietor of lands on the banks of a river has, naturally, an equal right to the use of the water which flows in the stream adjacent to his lands, as it was wont to run (currere solebat), without diminution or alteration. No proprietor has the right to use the water to the prejudice of other proprietors above or below him *unless he has a prior right to divert it or a title to some exclusive enjoyment. He has no property in the water itself, but a simple usufruct* while it passes along. Aqua currit et debet currere ut currere solebat is the language of the law. Though he may use the water while it runs over his land as an incident to the land, he can not unreasonably detain it or give it another direction, and he must return it to its ordinary channel when it leaves his estate. (3 Com., 439.) (Stein *v.* Burden, 29 Ala., 127.)

In the case of Head *v.* Amoskeag (113 U. S., 9), involving the right of the riparian owner to construct and maintain a milldam on his own land under a statute of New Hampshire, Justice Gray, who delivered the opinion of the court, declares:

> We prefer to rest the decision of this case upon the ground that such a statute, considered as regulating the manner in which the rights of proprietors of lands adjacent to a stream may be asserted and enjoyed, with a due regard to the interests of all, and to the public good, is within the constitutional power of the legislature (p. 21).

He further declares:

> The right to the use of running water is publici juris and common to all the proprietors of the bed and banks of the stream from its source to its outlet. Each has a right to the reasonable use of the water as it flows past his land, not interfering with a like reasonable use by those above or below him (p. 23).

In the case of the United States *v.* Rio Grande Co. (174 U. S., 690), in considering a nonnavigable reach of the Rio Grande River, in the Territory of New Mexico, Justice Brewer, who delivered the opinion of the court, after quoting the foregoing paragraph from Chancellor Kent, adds:

> While this is undoubted, and the rule obtains in those States in the Union which have simply adopted the common law, it is also true that as to every stream within its dominion a State may change this common-law rule and permit the appropriation of the flowing waters for such purposes as it deems wise.

That the sovereignty and control over, and paramount title to, the waters in a stream is in the State is further established by that line of decisions sustaining the rule of public ownership, and "prior appropriation," prevailing in the mining and semiarid States, and acquiescing in its application to the lands of the United States. (Jennison *v.* Kirk, 98 U. S., 45; Broder *v.* Water Co., 101 U. S., 274; Gutiers *v.* Albuquerque Co., 188 U. S., 545; Boquilla Cattle Co. *v.* Curtis, 213 U. S., 339.)

The case of Kansas *v.* Colorado (206 U. S., 46) was a controversy between two States, one recognizing the doctrine of public ownership and prior appropriation and the other the common-law rule. Chief Justice Shaw, in the case of Elliott *v.* Fitchburg Railway Co. (10 Cush., 191), describes the rights of the riparian owner under the common-law rule in the following terms:

> The right to flowing water is now well settled to be a right incident to property in the land; it is a right publici juris, of such a character that, while it is common and equal to all through whose land it runs, and no one can obstruct or divert it, yet, as one of the beneficial gifts of Providence, each proprietor has a right to a just and reasonable use of it as it passes through his land; and so long as it is not wholly obstructed or diverted, or no larger appropriation of the water running through it is made than a just and reasonable use, it can not be said to be wrongful or injurious to a proprietor lower down. What is such a just and reasonable use may often be a difficult question, depending upon various circumstances. To take a quantity of water from a large running stream for agricultural or manufacturing purposes would cause no sensible or practicable diminution of the benefit, to the prejudice of a lower proprietor; whereas, taking the same quantity from a small running brook passing through many farms would be of great and manifest injury to those below, who need it for domestic supply or watering cattle; and therefore it would be an unreasonable use of the water, and an action would lie in the latter case and not in the former. It is therefore to a considerable extent a question of degree; still the rule is the same, that each proprietor has a right to a reasonable use of it, for his own benefit, for domestic use, and for manufacturing and agricultural purposes. * * *
>
> That a portion of the water of a stream may be used for the purpose of irrigating land we think is well established as one of the rights of the proprietors of the soil along or through which it passes. Yet a proprietor can not under color of that right or for the actual purpose of irrigating his own land wholly abstract or divert the watercourse or take such an unreasonable quantity of water or make such unreasonable use of it as to deprive other proprietors of the substantial benefits which they might derive from it if not diverted or used unreasonably. * * *
>
> This rule, that no riparian proprietor can wholly abstract or divert a watercourse, by which it would cease to be a running stream, or use it unreasonably in its passage and thereby deprive a lower proprietor of a quality of his property, deemed in law incidental and beneficial, necessarily flows from the principle that the right to the reasonable and beneficial use of a running stream is common to all the riparian proprietors, and so each is bound to use his common right as not essentially to prevent or interfere with an equally beneficial enjoyment of the common right by all the proprietors. * * *
>
> The right to the use of flowing water is publici juris and common to all the riparian proprietors; it is not an absolute and exclusive right to all the water flowing past their land, so that any obstruction would give a cause of action; but it is a right to the flow and enjoyment of the water, subject to a similar right in all the proprietors to the

reasonable enjoyment of the same gift of Providence. It is, therefore, only for an abstraction and deprivation of this common benefit or for an unreasonable and unauthorized use of it that an action will lie.

The assertion of public ownership and of prior appropriation, already referred to, is thus described by Justice Field in the case of Jennison *v.* Kirk (98 U. S., 453). After describing the system of discovery and appropriation and development of mining claims, he adds the following:

> But the mines could not be worked without water. Without water the gold would remain forever buried in the earth or rock. To carry water to mining localities when they were not on the bank of a stream or lake became, therefore, an important and necessary business in carrying on mining. Here, also, the first appropriator of water to be conveyed to such locality for mining or other beneficial purposes was recognized as having, to the extent of actual use, the better right. The doctrine of the common law respecting the right of riparian owners was not considered as applicable, or only in a very limited degree, to the conditions of miners in the mountains. The waters of rivers and lakes were, consequently, carried great distances in ditches and flumes, constructed with vast labor and enormous expenditures of money, along the sides of mountains and through canyons and ravines, to supply communities engaged in mining as well as for agriculturists and ordinary consumption. Numerous regulations were adopted, or assumed to exist, from their obvious justness, for the security of these ditches and flumes, and for the protection of rights to water, not only between different appropriators, but between them and the holders of mining claims. These regulations and customs were appealed to in controversies in the State courts, and received their sanction; and properties to the value of many millions rested upon them. For 18 years, from 1848 to 1866, the regulations and customs of miners, as enforced and molded by the courts and sanctioned by the legislation of the State, constituted the law governing property in mines and in water on the public mineral lands.

These water rights, by prior appropriation, as described by Justice Field, were recognized and confirmed by congressional legislation in 1866 and in 1870. Those acts are now sections 2339 and 2340 of the Revised Statutes. Justice Field further adds:

> It will thus be seen that the Federal statutes merely gave a formal sanction to the rules already established. Those rules had been built up in reliance on the tacit acquiescence of the United States, the true owner of the lands and waters on which appropriations were made, and these statutes acquiesced therein expressly as "a voluntary recognition of a preexisting right" rather than the establishment of a new one.

In the case of Broder *v.* Natoma Water Co. (101 U. S., 274) the Supreme Court, in referring to the contention that these statutes established a new right, uses the following language:

> We are of the opinion that it is the established doctrine of this court that rights of miners, who had taken possession of mines and worked and developed them, and the rights of persons who had constructed canals and ditches to be used in mining operations and for purposes of agricultural irrigation, in the region where such artificial use of the water was an absolute necessity, are rights which the Government had, by its conduct, recognized and encouraged and was bound to protect before the passage of the act of 1866, and that the section of the act which we have quoted was rather a voluntary recognition of a preexisting right of possession, constituting a valid claim to its continued use, than the establishment of a new one.

While the common-law rule prevails—in some instances with slight modifications—in all of the States, except the so-called semiarid or mining States, there can be no doubt that it is in the power of these common-law States, by virtue of their sovereignty, to modify or change the rule of the common law. In the language of Justice Brewer (in U. S. *v.* Rio Grande Co., 174 U. S., 702–703):

> It is also true that as to every stream within its dominion a State may change this common-law rule and permit the appropriation of the flowing waters for such purposes as it may deem wise.

The same justice, in the case of Colorado *v.* Kansas (206 U. S., 94), describes the power of the State as follows:

> It may determine for itself whether the common-law rule in respect to riparian rights or that doctrine which obtains in the arid regions of the West of the appropriation of waters for the purposes of irrigation shall control. Congress can not enforce either rule upon any State. (See also McGilvra *v.* Ross, 215 U. S., 70.)

We append hereto Exhibit A,[1] which names most of the States in which the rule of prior appropriation prevails, and also gives the constitutional and statutory provisions, with some of the decisions of the courts relating to the subject in each of these States.

PROPERTY AND RIGHTS OF THE UNITED STATES.

Except as the owner of riparian lands and except for the purpose of regulating interstate commerce, the United States has no property in or sovereignty over the streams or watercourses within the boundaries of the several States. The sovereignty and ultimate control is in the State, and the proprietorship is either in the State or in the riparian owner, or in both, according to the constitutions and laws of the several States, and the power of the Federal Government over the streams is no greater in the so-called public-land States than in the States east of the Mississippi River. In Kansas *v.* Colorado (206 U. S., 92), already cited, Justice Brewer declares:

> As to those lands within the limits of the States, at least of the Western States, the National Government is the most considerable owner and has power to dispose of and make all needful rules and regulations respecting its property. We do not mean that its legislation can override State laws in respect to the general subject of reclamation. While arid lands are to be found mainly, if not only, in the Western and newer States, yet the powers of the National Government within the limits of those States are the same (no greater and no less) as those within the limits of the original thirteen, and it would be strange if, in the absence of a definite grant of power, the National Government could enter the territory of the States along the Atlantic and legislate in respect to improving by irrigation or otherwise the lands within their borders.

THE RIGHTS OF THE FEDERAL GOVERNMENT AS RIPARIAN OWNER.

Through the treaty of independence and subsequent treaties with Great Britain, through cessions from foreign countries, and some of the original States of the Union, and through discovery and exploration, and by virtue of its national sovereignty, the Federal Government became the proprietor of a vast domain of unsettled and undeveloped lands. Chancellor Kent (1 Com., 257) describes the title of the United States to this domain in the following language:

> Upon the doctrine of the court in Johnson *v.* McIntosh, 1823 (8 Wheat., 543), and Fletcher *v.* Peck, 1810 (6 Cranch, 142, 143), the United States own the soil as well as the jurisdiction of the immense tracts of unpatented lands included within their territories, and of all the productive funds which those lands may hereafter create. The title is in the United States by the treaty of peace with Great Britain, and by subsequent cessions from France and Spain, and by cessions from the individual States.

By paragraph 2, section 3, Article IV of the Constitution, Congress was given plenary control over this public domain in the following terms:

> The Congress shall have power to dispose of and make all needful rules and regulations respecting the territory or other property belonging to the United States; * * *

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[1] See p. 20.

The power thus conferred on Congress is as full and complete as the power, conferred by another paragraph of the Constitution, to regulate foreign and interstate commerce. The power of Congress is paramount and plenary in each case. Justice Brewer, in the case of The United States *v.* Rio Grande Co. (174 U. S., 690, 703), declares:

> Although this power of changing the common-law rule as to streams within its dominion undoubtedly belongs to each State, yet two limitations must be recognized: First, that in the absence of specific authority from Congress a State can not by its legislation destroy the right of the United States as the owner of lands bordering on a stream to the continued flow of its waters, so far at least as may be necessary for the beneficial uses of the Government property. Second, that it is limited by the superior power of the General Government to secure the uninterrupted navigability of all navigable streams within the limits of the United States. In other words, the jurisdiction of the General Government over interstate commerce and its natural highways vests in that Government the right to take all needed measures to preserve the navigability of the navigable watercourses of the country even against any State action.

The right of the Federal Government as riparian owner is that of a riparian owner at common law. (Sturr *v.* Beck, 133 U. S., 541; Lux *v.* Haggin, 69 Cal., 336.) This right vested in the Federal Government when it acquired its public domain and of this right it is not divested on the admission of a State into the Union, for this right is expressly reserved by the Constitution. The title of the Federal Government to the public lands in the States where the rule of prior appropriation prevails antedates the admission of those States into the Union, and over that title the Constitution reserved plenary power of disposal and regulation to the Federal Government. It is only when the Federal Government has entirely parted with that title and it has passed into other ownership that the power of regulation on the part of the Federal Government becomes extinct. The water on the riparian land of the Federal Government is an appurtenance of the land of which it can not be divested without its consent, no more than of its riparian lands. In the case of the United States *v.* Winans (198 U. S., 371) it was held that the Federal Government had the power to reserve a fishing right for the Yakima Indians in the Columbia River, and that such reservation, though made when the State was a Territory, bound the future State. And in the case of Winters *v.* The United States (207 U. S., 564) it was held that the Federal Government had the right to reserve the water in the Milk River for the benefit of the Indians and officers of the Government on the Fort Belknap Reservation, in Montana, and that this reservation of the water, though made while Montana was a Territory, bound it after it became a State. The court affirms and asserts the doctrine and rule in these terms:

> Another contention of appellants is that if it be conceded that there was a reservation of the waters of Milk River by the agreement of 1888, yet the reservation was repealed by the admission of Montana into the Union, February 22, 1889 (c. 180, 25 Stat., 676), "upon an equal footing with the original States." The language of counsel is that "any reservation in the agreement with the Indians, expressed or implied, whereby the waters of Milk River were not to be subject of appropriation by the citizens and inhabitants of said State, was repealed by the act of admission." But to establish the repeal counsel rely substantially upon the same argument that they advance against the intention of the Government to reserve the waters. The power of the Government to reserve the waters and exempt them from appropriation under the State laws is not denied, and could not be. (The United States *v.* The Rio Grande Ditch & Irrigation Co., 174 U. S., 690, 702; United States *v.* Winans, 198 U. S., 371.)

In the case of Camfield *v.* United States (167 U. S., 518), the court declares:

> While we do not undertake to say that Congress has the unlimited power to legislate against nuisances within a State, which it would have within a Territory, we do not think the admission of a Territory as a State deprives it of the power of legislating for the protection of the public lands, though it may thereby involve the exercise of what is ordinarily known as the police power, so long as such power is directed solely to its own protection. A different rule would place the public domain of the United States completely at the mercy of State legislation.

These opinions of the Supreme Court of the United States have been concurred in by some of the courts of those States in which the rule of prior appropriation prevails.

Judge Rudkin, of the Supreme Court of the State of Washington (now a Federal district judge), in the case of Kendall *v.* Joyce (48 Wash., 492–493), declares:

> It has never been contended that a mere squatter on public land who subsequently sells out or abandons his claim acquires, or can acquire, riparian rights in a stream flowing through the land. Riparian rights are a mere incident to ownership in the soil, and, while they may relate back by fiction of law to the date of the settlement or filing, by virtue of the patent subsequently issued, yet they do not vest until patent issues, for up to that time the patent to the land with all its incidents is vested in the United States, utterly beyond the power or control of State legislatures. And the party thereafter acquiring title from the Government acquires the land with all its incidents.

In the case of Cruse *v.* M'Cauley (96 Fed. Rep., 369), the United States Circuit Court for Montana, through Judge Knowles, declares:

> It must be conceded that the United States, as the proprietor of the land over which the South Fork of McDonald Creek flowed, had a right to the flow of the waters thereof over its land, as an incident thereto. In the eastern part of Montana the United States acquired its title to land by virtue of what is called the "Louisiana purchase." There can not be one rule as to the right to the flow of water over its lands in Montana and another rule as to its lands in Iowa and Missouri. In these last-named States there can be no doubt of the rule that the National Government would be entitled to water which is an incident to its land. As the United States then owns the waters which are an incident to its lands, it can dispose of them separate from its lands if it chooses. Section 2339, Revised Statutes, provides:
>
> "Whenever by priority of possession, rights to the use of water for mining, agricultural, manufacturing, or other purposes, have vested and accrued and the same are recognized and acknowledged by the local customs, laws, and decisions of courts, the possessors and owners of such vested rights shall be maintained and protected in the same."
>
> The practical construction of this statute has been that, as long as land belonged to the United States, the waters flowing over the same was subject to appropriation for any of the purposes named, when such appropriation was recognized by the local customs, laws, or decisions of the courts. But if the water was not so appropriated when it flowed over the public domain, it was not subject to appropriation after the land over which it flowed became private property. Patents of the United States to lands contain this clause:
>
> "Subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes," etc.
>
> Certainly this means subject to such water rights as existed at the time when the patent took effect. * * *
>
> If a person receives a patent from the United States for land subject only to accrued water rights—that is, existing water rights—and as an incident to or a part of this land there is water flowing over the same or upon the same, he would have all the rights the United States had at that time. I do not think any State law or custom can take away such rights, except for some public purpose.

The Federal Government has the undoubted right to lease its riparian and other lands with all their appurtenances. (United States *v.* Gratiot, 14 Pet., 526.)

Congress has also the undoubted power to create and establish forest reserves on the lands of the United States within any State, and to authorize the Secretary of Agriculture to make proper rules and regulations for the use of the same, and to charge a compensation for the use of any portion of the reservation; and such a statute amounts to a revocation of the implied license to graze the public lands, referred to and sustained in the case of Buford *v.* Houtz (133 U. S., 320). (See United States *v.* Grimaud, 220 U. S., 506; Light *v.* United States, 220 U. S., 523.)

In this connection it may be observed that the right to occupy and use the public lands of the United States for canals and ditches, for the appropriation of water for agricultural and mining purposes, is based upon and conferred by the following acts: July 26, 1866 (R. S., sec. 2339), and July 9, 1870 (R. S., sec. 2340). There is, in addition to these acts, the right-of-way law contained in the act of March 3, 1891. (26 Stat., p. 1101.) It is through these laws, and not by virtue of any State authority, that the use of the public domain for the appropriation of water is conferred and acquired.

It is further to be noted that the act of June 25, 1910 (36 Stat., 847), confers the following-described power upon the President in these terms:

> That the President may, at any time in his discretion, temporarily withdraw from settlement, location, sale, or entry any of the public lands of the United States, including the District of Alaska, and reserve the same for water-power sites, irrigation, classification of lands, or other public purposes to be specified in the orders of withdrawals, and such withdrawals or reservations shall remain in force until revoked by him or by an act of Congress.

In the light of the constitutional provision and of the interpretation placed upon it by the decisions of the Supreme Court and other courts in respect to this subject, it seems clear that the Federal Government, through Congress, has the power to lease its riparian lands, with the waters appurtenant thereto, situate within the several States, for such a period, on such terms, and for such rent as Congress in its discretion may prescribe, but the lessee would, at most, only acquire the common-law usufruct in the water of the appurtenant stream, as defined by Chancellor Kent and Chief Justice Shaw.

THE POWER OF THE FEDERAL GOVERNMENT UNDER THE INTERSTATE-COMMERCE CLAUSE OF THE CONSTITUTION.

For the purpose of promoting and regulating foreign and interstate commerce Congress is given plenary power over all the navigable waters of the United States, to the end of improving and maintaining their navigability; and this power is not limited to the navigable sections of streams, but extends to the tributaries and feeders of the same, for without the control of these the power over the navigable sections might become wholly impotent. (United States *v.* Rio Grande Co., 174 U. S., 690.) Neither can any limits be placed upon the methods of improving the navigability of streams nor upon the means by which commerce can be carried on upon the same.

Science has in recent years evoked from the great storehouse of nature the hidden and well-nigh limitless power of electricity and utilized the same in various ways for the promotion of commerce, industry, and the domestic and social well-being of mankind. The bounds of such power and use can not well be defined or foretold. That such power has become and may still much further become one of the great instrumentalities of commerce is evident. While sail, aside from the oar, was the only known motive power on water the limits of navigation was confined to tide water. The discovery of steam extended navigation on our streams far beyond the limits of tide water, and who can tell how much further hydroelectrical power generated by a dam in a stream may extend navigation on that or some other stream? The water in a stream may not only be used to float and carry a vessel, a boat, or a barge, but it may also be used to furnish the motive power for the navigation of the same. And a dam erected in a stream carrying interstate commerce can well be utilized for this double purpose; and Congress, having jurisdiction over the improvement and regulation of an interstate navigable stream, has ample power to resort to all reasonable means for the improvement of navigation and the promotion of commerce on such a stream. (Gibbons *v.* Ogden, 9 Wheat., 1.)

If, for the purpose of improving the navigability of a stream carrying interstate commerce, the Federal Government constructs and maintains a dam, with locks and gates, on its riparian lands or on lands in which it has acquired an easement for such construction and maintenance, the Government has the undoubted right to establish and maintain, in connection with such dam, an electric power plant for the purpose of furnishing motive power to operate such locks and gates. And the Federal Government has the right to sell, lease, or rent, for compensation, any surplus power that may arise from and be an incident to such an improvement of navigation. (Kaukauna Water Power Co. *v.* Green Bay & Mississippi Canal Co., 142 U. S., 254.)

This case relates to the construction of a dam for purposes of navigation and the use of the surplus water incident thereto. In 1846, Congress made a grant of land to the State of Wisconsin for the improvement of the navigation of the Fox and Wisconsin Rivers. The State assumed the grant and the work. In the act of assumption it was provided among other things:

> Whenever a water power shall be created by reason of any dam erected or other improvements made on any of said rivers, such water power shall belong to the State, subject to the future action of the legislature.

The court, in passing upon the effect of this reservation to the State, declares:

> But if, in the erection of a public dam for a recognized public purpose, there is necessarily produced a surplus of water, which may properly be used for manufacturing purposes, there is no sound reason why the State may not retain to itself the power of controlling or disposing of such water as an incident of its right to make such improvement. Indeed, it might become very necessary to retain the disposition of it in its own hands, in order to preserve at all times a sufficient supply for the purposes of navigation. If the riparian owners were allowed to tap the pond at different places and draw off the water for their own use, serious consequences might arise, not only in connection with the public demand for the purposes of navigation, but between the riparian owners themselves as to the proper proportion each was entitled to draw—controversies which could only be avoided by the State reserving to itself the immediate supervision of the entire supply. As there is no need of the surplus running to waste, there was nothing objectionable in permitting the State to let out the use of it to private parties, and thus reimburse itself for the expenses of the improvement.

The court, after further comments and the citation of three Ohio cases, adds:

> The true distinction seems to be between cases where the dam is erected for the express or apparent purpose of obtaining a water power to lease to private individuals, or where in building a dam for a public improvement a wholly unnecessary excess of water is created, and cases where the surplus is a mere incident to the public improvement and a reasonable provision for securing an adequate supply of water at all times for such improvement.

Also, see Green Bay Co. *v.* Patten Co. (172 U. S., 58), relating to the same water power and dam after the Federal Government had taken over the work and improvement.

In general, it may be said that whenever the Federal Government is engaged in improving the navigability of a stream on which there is interstate commerce, if by reason and in consequence of such improvement, and as an incident thereto, surplus power is created, the Federal Government has the right to lease or sell such power on such terms and for such compensation as it may deem just.

Congress, as in the case of Wisconsin, Ohio, and other States, can delegate the work of improving portions of navigable rivers to States, municipalities, private corporations, and individuals, and if in connection with such improvement and as an incident thereto surplus power is created, Congress may authorize those to whom the right of improvement is delegated to lease and secure compensation for such surplus power. In such cases those to whom the power of making the improvement is delegated are the agents for and stand in place of the Federal Government. But unless such work of improvement is primarily made for the purpose of improving the navigation on streams or other waters carrying interstate commerce, the Federal Government could not confer the power to obtain compensation for the use of the water.

Provision has been made in several acts of Congress for the utilization of surplus water power on navigable streams. In a part of the cases the dam or other improvement has been carried on and made directly by the United States; in other cases by private parties. Senate Document No. 57, first session Sixty-second Congress (see Exhibit B[1] appended hereto), contains a list of the cases where so-called water-power privileges have been granted. The case of the Black Warrior River in Alabama has been added to the document since it was issued.

ANSWER TO THE INTERROGATORIES PROPOUNDED IN THE RESOLUTION.

Coming now, in the light of the Constitution and of the construction and interpretation put upon it by the courts in the authorities we have cited, to the direct consideration of the interrogatories propounded in the foregoing resolution, and before attempting to directly respond to the same, it must be borne in mind that it is always difficult to give a satisfactory and instructive answer to a hypothetical or abstract question. It is much easier to solve a concrete case.

As to the first interrogatory, the only answer we can make is this: That whether a stream is navigable or nonnavigable, State or interstate, the rights of the Federal Government as riparian owner are practically the same; and barring any power that may rest in the Federal Government under the commerce clause of the Constitution, that Government has manifestly the right to lease, for compensation and on such terms as it sees fit, its riparian lands with the water appurtenant thereto, but the lessee would not acquire a greater right or interest in such water than the *usufruct* as defined by the common law, and such right or interest would be subject to and charged with any right acquired under the act of July 26, 1866 (R. S., sec. 2339). The Federal Government has no water *power* aside from the *usufruct*, to lease in such case; and if the utilization of the water in a stream is sought beyond such *usufruct* and for other purposes, authority therefor must be obtained from the State where the residuary power over the water resides.

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[1] See p. 32.

Responding to the second interrogatory, we are of the opinion, divorcing the question from riparian rights, that the Federal Government, in authorizing the construction and maintenance of a dam on a navigable stream by States, municipalities, or private parties, for the chief and primary purpose of improving the navigation of the stream, has the same right to prescribe the terms and compensation for the use of the surplus power, created as an incident to the main improvement, as the Government would have in case it had itself built the dam or made the improvement, and that the Government having delegated the power of building such dam to private parties might well confer upon them as compensation for the work thus undertaken the right to do what the Government itself could do in case it had itself constructed the work. In this connection, and as a further response to the interrogatory, it must be noted that the mere grant by the Federal Government of authority to construct a dam in a navigable river, not for purposes of navigation, but really for the creation of a water power, is merely a license or permit, the effect of which is that if the dam is constructed and operated conformable to plans approved by the Government, it will not be deemed an obstruction or impediment to navigation. And in such case the Government would be authorized to charge a nominal license fee for inspecting and passing upon the plans and for watching over the work to see that it conforms to the plans and is properly maintained; but the regulative power of the Government would not extend to the use of the water for other purposes than navigation and interstate commerce. In such a case it seems to us that the Federal Government has no water power to sell or charge compensation for, for it is only authorized by the Constitution to regulate interstate and foreign commerce, which in this case means navigation.

As to the third interrogatory, it may be remarked that it has in part been responded to in the answer to the first interrogatory. And as a further answer we will add that the Federal Government has under the Constitution plenary power to sell or lease its riparian lands with the water appurtenant thereto, and that if on any such land there is a water-power site, that, as a part of the riparian land, can of course be sold or leased. The Federal Government has no water *power* distinct or separable from its riparian lands or any water-power site on the same. The only water *power* the Federal Government owns is the common-law *usufruct* in the water appurtenant to its riparian lands. In leasing its riparian lands with their appurtenant water, which is all the Government has to lease within the limits of a State, it can no doubt prescribe such terms as it sees fit in respect to rent, duration of lease, and the uses to which the leased premises may be put. It can say in its lease to the lessee, "If you succeed in creating and maintaining a water power on the premises I lease you, you will be required to rent such power on such and such terms. This condition will be in your lease; without it I will not lease you the premises. If you accept a lease with this condition and fail to comply with the condition, your lease will be forfeited.' In this connection it must be borne in mind, however, that the leasing of the water-power site as a part of the riparian lands of the Federal Government does not in and of itself confer the right to create a water *power*. At most, as we have already stated, it merely confers the common-law right of usufruct in the water. If any other or further use of the water in the stream is required, the right to such use must be obtained from State authority, and, therefore, it is difficult to see how water power can be established in such cases without the cooperation or consent of the State.

Several acts have been passed by Congress relating to obstructions, and the construction of dams, in navigable rivers. Among these, to which we call your attention, is the act of September 19, 1890 (26 Stat., 426), which contains important provisions for the removal or change in bridges that are found to be an obstruction to navigation by the Secretary of War, and other provisions relating to the construction of wharves, piers, bridges, etc.

The act of July 13, 1892 (27 Stat., 88), relates particularly to the construction of wharves, piers, and bridges over navigable waters, and requires the approval of the Secretary of War for any improvement or bridge. (See sec. 3, p. 110.)

Section 10 of the act of March 3, 1899 (30 Stat., 1121), prohibits the creation of any obstruction to the navigable capacity of any of the waters in the United States not affirmatively authorized by Congress, etc., and prohibits the construction of any breakwater, jetty or other obstruction in any river or water of the United States, except on plans recommended by the Chief of Engineers and authorized by the Secretary of War. Section 9 of the same act prohibits the construction of any bridge, dam, etc., over any navigable river without the consent of Congress and without the approval of plans by the Chief of Engineers and Secretary of War.

The act of June 21, 1906 (34 Stat., 386), relates to the construction of dams by parties other than the Federal Government, and the act of June 23, 1910 (36 Stat., 593), is amendatory of the preceding act, and lays down many important rules and regulations for the construction of dams in navigable rivers, etc.

Exhibit A.

CALIFORNIA.

California was admitted into the Union in 1850, and the only provision in the act for admission of September 9 (9 Stat., 453) relating to water rights is "that navigable waters are declared common highways and forever free to the inhabitants of the State and citizens of the United States without any tax, impost, or duty therefor"

Section 1 of article 14, constitution, 1879 (p. 443, vol. 1, Am. Chs., Cons., and Oc. L.), provides:

> The use of all waters now appropriated or that may hereafter be appropriated for sale, rental, or distribution is hereby declared to be a public use and subject to the regulation and control of this State, in the manner to be prescribed by law.

Section 1410, California Civil Code, provides:

> The right to the use of running water flowing in a river or stream, or down a canyon or ravine, may be acquired by appropriation.

Section 1411, California Civil Code, provides:

> The appropriation must be for some useful or beneficial purpose, and when the appropriator or his successor in interest ceases to use it for such purpose the right ceases.

Section 1422, which, as originally enacted, provided that "The rights of riparian proprietors are not affected by the provisions of this title," i. e., the title relating to the appropriation of water, was enacted March 21, 1872, with section 1410 and following sections, but repealed March 15, 1887. (Stats. and Amendts., p. 114.) This repealing act contains the following provision:

> The repeal of this section shall not in any way interfere with any rights already vested.

One who bases his right on appropriation of water over land then part of the public domain acquires no right superior to those attaching to riparian lands which at the time of the appropriation were private. (Hargrave *v.* Cook, 108 Cal., 78.) 1895.

In the case of Hill *v.* Newman (5 Cal., 446), Justice Bryan in explaining a water right said:

> The right to running water is defined to be a corporeal right, or hereditament, which follows or is embraced by the ownership of the soil over which it naturally passes * * *. From the policy of our laws, it has been held in this State to exist without private ownership of the soil—upon the ground of prior location upon the land, or prior appropriation and use of the water.

And in the case of McDonald & Blackburn *v.* Bear River & Auburn Water & Mining Co. (13 Cal., 232, 233), Justice Baldwin put it in this language:

> The ownership of water as a substantive and valuable property, distinct, sometimes, from the land through which it flows, has been recognized by our courts; and this ownership, of course, draws to it all the legal remedies for its invasion. The right accrues from appropriation; this appropriation is the intent to take, accompanied by some open, physical demonstration of the intent and for some valuable use. We have held that there is no difference in respect to this use, or rather purpose, to which the water is to be applied; at least, that an appropriation for the uses of a mill stands on the same footing as an appropriation for the use of mines.

The rule of the common law as to riparian rights in its extreme rigor are not adapted to the conditions existing in this State. It is relaxed to a certain extent, and moreover right to the use of water may be procured by prior appropriation thereof where the absolute title to the soil has not passed from the Government or State. But where the title to the riparian soil is in private parties it seems to be the law that they are under the protection of the common-law rule. The rights in water acquired by a riparian proprietor are attached to the soil and pass with it (Lux *v.* Haggin, 69 Cal., 255) and may be lost only by grant, condemnation, or prescription. (Hargrave *v.* Cook, 108 Cal., 77; Bathgate *v.* Irvine, 126 Cal., 142; Eddy *v.* Simpson, 3 Cal., 249; Pet *v.* Santa Rosa, 119 Cal., 392; Gould *v.* Stafford, 77 Cal., 66; Union M. and M. Co. *v.* Ferris, 2 Sawy., 176; Union M. and M. Co. *v.* Dangby, 2 Sawy., 450; Land & Water Co. *v.* Hancok, 85 Cal., 219.)

Justice Heydenfeldt, in a leading case (5 Cal., 147), said:

> The miner who selects a piece of ground to work must take it as he finds it, subject to prior rights, which have an equal equity on account of an equal recognition from the sovereign power. If it is upon a stream the waters of which have not been taken from the bed, they can not be taken to his prejudice; but if they have been already diverted, and for as high and legitimate purpose as the one he seeks to accomplish, he has no right to complain, no right to interfere with the prior occupation of his neighbor, and must abide the disadvantage of his own selection.

Chief Justice Murray, in Hill *v.* King (8 Cal., 338), speaking on this subject said:

> The only test as between parties where the lands belong to the United States or this State is priority of location, and whether a party locates above or below the claim of another his right depends or originates in appropriation alone; he must take subject to the higher right of those who were first in point of time to appropriate. If the parties both claimed as riparian proprietors, then each alike would be entitled to the reasonable use of the water for proper purposes. But in such case the supra-riparian proprietor must so do the same as to do his neighbor the least possible injury.

IDAHO.

The constitution of Idaho, 1889, section 1 of article 15, contains the same provision as section 1 of article 14 of the California constitution, supra (pp. 943, 944, vol. 2, Am. Ch., Con., and O. L.), with the additional provision that the use "of all water originally appropriated for private use, but which after such appropriation has heretofore been or may hereafter be sold, rented, or distributed" is also a public use.

Section 3 provides:

> The right to divert and appropriate the unappropriated waters of any natural stream to beneficial use shall never be denied. Priority of appropriation shall give the better right as between those using the water; but when the waters of any natural stream are not sufficient for the service of all those desiring the use of the same, those using the water for domestic purposes shall (subject to such limit as may be prescribed by law) have the preference over those claiming for any other purpose; and those using the water for agricultural purposes shall have preference over those using the same for manufacturing purposes. And in any organized mining district, those using the water for mining purposes, or milling purposes connected with mining, shall have preference over those using the same for manufacturing or agricultural purposes. But the usage by such subsequent appropriators shall be subject to such provisions of law regulating the taking of private property for public and private use as referred to in section 14, article 1, of this constitution.

Section 3240, Revised Statutes, puts the control of water within the borders of the State in the State and declares that all waters are the property of the State; section 3242 provides for acquiring the right to the use of water by appropriation, and section 3243 that it must be for a useful and beneficial purpose.

The State engineer is prohibited from granting permits to divert waters of a lake, pond, or pool situated wholly upon lands of a person or corporation except to the owner. (Chap. 230, Sess. Laws, 1911.)

In the case of Drake *v.* Earhart (2 Idaho, 716) it was held that a prior appropriator of the water of a stream, all of which he claimed, had used, and needed for irrigation, was entitled to the whole as against a patentee of land through which the stream flowed, though no custom to that effect was shown.

Said Chief Justice Beatty (p. 720):

> The important question * * * is what, if any, rights the appellant has to any of that water as a riparian proprietor. His claim is not based upon prior or any appropriation under our territorial laws, but upon the fact that the stream in question flows by its natural channel through his land; hence that he is entitled to the use thereof allowed by the common law. This doctrine of riparian proprietorship in water as against prior appropriation has been very often discussed and nearly always decided the same way by almost every appellate court between Mexico and the British possessions and from the shores of the Pacific to the eastern slope of the Rocky Mountains, as well as by the Supreme Court of the United States. While there are questions growing out of the water laws and rights not fully adjudicated, this phantom of riparian rights, based upon facts like those in this case, has been so often decided adversely to such claim and in favor of prior appropriation that the maxim "first in time, first in right" should be considered the settled law here. * * * It is the lineal descendant of the law of necessity.

It is very evident, therefore, that in the State of Idaho, according to the constitution, statutes, and decisions of the courts, all waters are in full control of the State, subject to appropriation for beneficial uses and the sale, rental, or distribution thereof.

MONTANA.

Section 15, article 3, constitution, 1889, provides (p. 2302, vol. 4, Am. Ch., Con., and O. L.):

> The use of all water now appropriated or that may hereafter be appropriated for sale, rental, distribution, or other beneficial use, and the right of way over lands of others for all ditches, drains, flumes, canals, and aqueducts necessarily used in connection therewith, as well as the sites for reservoirs necessary for collecting and storing the same, shall be held to be a public use.

Section 4432, Revised Statutes, 1907 (in part):

> The State is the owner of all land below the water of a navigable lake or stream.

Section 4840, Revised Statutes, 1907 (approved Mar. 16, 1901):

> The right to the use of any unappropriated water of any natural stream, watercourse, spring, dry coulee, or other natural source of supply, and of any running water flowing in the streams, rivers, canyons, and ravines of this State, may hereafter be acquired by appropriation.

Section 4846, Revised Statutes, 1907, gives the United States, through the Secretary of the Interior, the right to appropriate the waters of streams or lakes within the borders of the State in the same manner as an individual.

In the case of Columbia Mining Co. *v.* Holter (1 Mont., 300), Chief Justice Warren, in speaking of the doctrine of prior appropriation, used this language:

> By appropriation a man acquires only the right of possession and user of water, qualified by the right of others to its use, in such manner as shall not materially diminish or deteriorate it at the place of his appropriation in quantity or quality.

From the above sections it would appear that the right of the United States to the streams and waters therein in this State is no greater than that of an individual—i. e., to acquire a right therein by appropriation.

WASHINGTON.

Section 1, article 17, constitution, 1889 (p. 4001, vol. 7, Am. Ch., Con., and O. L.):

> The State of Washington asserts its ownership to the beds and shores of all navigable waters in the State up to and including the line of ordinary high tide, in waters where the tide ebbs and flows, and up to and including the line of ordinary high water within the banks of all navigable rivers and lakes: *Provided*, That this section shall not be construed so as to debar any person from asserting his claim to vested rights in the courts of the State.

Section 2:

> The State of Washington disclaims all title in and claim to all tide, swamp, and overflowed lands patented by the United States: *Provided*, The same is not impeached for fraud.

Section 1, article 21:

> The use of the waters of the State for irrigation, mining, and manufacturing purposes shall be deemed a public use.

Justice White:

> The provision of article 17, section 1, of the constitution was evidently for the purpose of establishing the right of the State to the beds of all navigable waters in the State, whether lakes or rivers, or fresh or salt, to the same extent the Crown had in England in the sea and in the arms and inlets thereof and in the tidal rivers, and to eliminate the distinctions existing under the rule of the common law in this respect.

A lower riparian owner can not be deprived of his right to the usual and undiminished flow of water without the exercise of eminent domain, even where the upper proprietor is a municipal corporation which seeks to divert the waters for necessary public use. It was contended that by section 1, article 17, the State could authorize the diversion of a stream for the use of the inhabitants of a city, it being a public use and a paramount necessity superior to every other use. Justice White said further:

> Though this section has the effect, as has been held by this court in Eisenbach *v.* Hatfield (2 Wash., 236) and Harborland Commissioners *v.* State (2 Wash., 530), of vesting in the State the entire and exclusive ownership of the beds and shores of all navigable waters, it should not be construed as affecting the rights of riparian proprietors upon nonnavigable water courses, though their source is in navigable waters. The use of the water in such nonnavigable streams is not inconsistent with the retention of the fee in the bed of navigable waters in the State. The provision of section 16, article 1, of the constitution protects private property from confiscation for public use; and the proviso to article 17, section 1, clearly indicates that so far as rights had become vested, notwithstanding the other provisions of this section, the owner thereof should have the right to assert them in the courts; and, if this language means anything, it is that those rights should be protected and guarded by the courts. (24 Wash., 499, 500, 501, New Whatcom *v.* Fairhaven Land Co.)

Section 6316, Remington & Ballinger's Code, 1910:

> The right to the use of water in any lake, pond, or flowing spring in this State or the rights of the use of any water flowing in any river, stream, or ravine of this State, for irrigation, mining, or manufacturing purposes, or for supplying cities, towns, or villages with water, or for waterworks, may be acquired by appropriation and as between appropriators the first in time is the first in right.

Section 6325, Remington & Ballinger's Code, 1910, gives the right to any person, corporation, or association of persons, and section 6326 the right to riparian proprietors to appropriate surplus and unappropriated waters for purposes of irrigation and mining.

Section 4102 provides for the procuring of right of way across intervening lands for ditches, etc.

"The common-law doctrine of riparian rights in the use of waters of a stream has become a rule of property in this State." (Nesalhous *v.* Walker, 45 Wash., 621.)

A prior appropriator of water over public lands can not be defeated of his rights by subsequent homesteaders on the land. (Thorpe *v.* Tenem, 1 Wash., 566.)

NORTH DAKOTA.

Article 17, section 210, constitution, 1889 (p. 2885, vol. 5, Am. Ch., Con., and O. L.):

> All flowing streams and natural watercourses shall forever remain the property of the State for mining, irrigating, and manufacturing purposes.

Section 4798, Revised Codes, 1905:

> The owner of the lands owns the water standing thereon, or flowing over or under its surface, but not flowing in a definite stream. Water running in definite stream formed by nature, over or under the surface, may be used by him as long as it remains there; but he may not prevent the natural flow of the stream or of the natural springs from which it commences its definite course, nor pursue or pollute the stream.

Section 7604:

> All waters within the limits of the State, from all sources of water supply belong to the public, and except as to navigable waters, are subject to appropriation for beneficial use.

Section 7639 gives the United States the right to appropriate waters within the State the same as an individual.

The homestead settlers have superior rights over subsequent miner's claims. (Sturr *v.* Beck, 6 N. Dak., 71; 133 U. S., 541.)

A riparian owner may use reasonable quantity of water for irrigation purposes. An appropriator who acquires subsequent rights can not complain of use made of water by upper riparian proprietor. (Lone Tree Ditch Co. *v.* Cyclone Ditch Co., 15 S. Dak., 519.)

In the case of Bigelow *v.* Draper (6 N. Dak., 152) Justice Corless said:

> At common law the owner of lands through which a nonnavigable stream flowed was possessed of the title to the bed of the stream as well as of the right to a reasonable use of the water. The land under the water was his, the right to a reasonable use of the stream was as much his property as the land itself. The course of the stream could not be so diverted as to cause it to cease to flow in its accustomed channel upon his property. These doctrines of the common law were in force in the Territory of Dakota at the time of the adoption of the constitution of this State. By virtue of them the riparian owners in the Territory were vested with specified property rights in the bed of all natural water courses, and in the water itself. Such rights were under the protection of the fourteenth amendment to the Federal Constitution, which protects property against all State actions that does not constitute due process of law. It follows that section 210 of the State constitution would itself be unconstitutional in so far as it attempted to destroy those vested rights of property, if it should by construction be given a scope sufficiently wide to embrace such matters. For this reason we feel constrained to hold, despite its broad language, that section 210 was not framed to divest the rights of riparian owners in the waters and beds of all natural water courses in the State.

SOUTH DAKOTA.

Section 192, Revised Code, 1903:

> The ownership of land below ordinary high-water mark and the land below the water of a navigable lake or stream is regulated by the laws of the United States, or by such laws of the State as the legislature may enact.

Section 278, Revised Code:

> The owner of the lands owns the water standing thereon or flowing over or under its surface, but not flowing in a definite stream. Water running in definite stream formed by nature over or under the surface may be used by him as long as it remains there, but he may not prevent the natural flow of the stream or of the natural springs from which it commences its definite course, nor pursue nor pollute the stream.

Section 289, Revised Code:

> Except where the grant under which the land is held indicates a different intent, the owner of the upland, when it borders upon a navigable lake or stream, takes to the edge of the lake or stream at low-water mark, and all navigable rivers shall remain and be deemed public highways. In all cases where the opposite banks of any streams not navigable belong to different persons the stream and the bed thereof shall become common to both.

Section 2563, Revised Code:

> Any person or persons, corporation or company, who may have or hold a title or possessory right to any mineral or agricultural lands within the limits of this State shall be entitled to the usual enjoyment of the waters of the streams or creeks in said State for mining, milling, agricultural, or domestic purposes: *Provided,* That the right to such use shall not interfere with any prior right or claim to such waters when the law has been complied with in doing the necessary work.

Section 2567, Revised Code:

> The waters of the streams or creeks of the State may be made available to the full extent of the capacity thereof for mining, milling, agricultural, or domestic purposes, without regard to deterioration in quality or diminution in quantity, so that the same do not materially affect or impair the rights of the prior appropriator.

Sections 2564 and 2568 give right of way through and over any tract or piece of land for the above purposes and provide for damages for such cutting over lands.

To the contention that the provisions of section 278, Revised Code, were of no effect after the adoption of the prior appropriation doctrine, Justice Corson, in the case of The Lone Tree Ditch Co. *v.* Cyclone Ditch Co. (15 S. Dak., 525), said:

> The Government has by these provisions (secs. 2339 and 2340, U. S. Rev. Stats.) recognized the right to appropriate water and taking the same from its natural channel. The legislature of this State has properly provided for the making of such appropriation, but the right of the riparian owners to the use of such waters which have become vested are such as are prescribed by section 2771, Compiled Laws (sec. 278, Rev. Code). In our opinion, therefore, the provisions of section 2771 are still in force, and this seems to have been the opinion of the Supreme Court of the United States in Sturr *v.* Beck. * * *
>
> In that State (California) as in this, two systems prevail: One for acquiring the use of water for irrigation purposes by appropriation, and the other the common-law right to the use of water not so legally appropriated for irrigation purposes, by the riparian owner.

UTAH.

Section 1, article 17, constitution, 1895 (p. 3728, vol. 6, Am. Ch., Con., and O. L.):

> All existing rights to the use of any of the waters in this State for any useful or beneficial purpose are hereby recognized and confirmed.

Section 1288x5, Compiled Laws, 1907, provides that right to the use of unappropriated waters may be acquired by appropriation for a beneficial use; section 1288x6, that the application to State engineer must be made before commencing actual appropriation; section 1288x17, date of receipt of application determines priority; section 1288x19 that the water of all streams and other sources is the property of the public subject to the use thereof.

Section 1288x10, as amended March 20, 1911, provides that—

> An application for water made by a homesteader, desert entryman, or person in possession of land under contract to purchase the same, such water to be used exclusively upon the land of such person may be approved without reference to prior conflict.

Section 1288x21 provides for secondary rights in water; for acquiring right of way over adjacent land for ditches, and so on, by eminent domain; and for just compensation to the owner of land injured thereby.

A municipal corporation took possession and control of the waters of a certain stream with the express consent of the original locators and held the stream more than seven years; held, that it acquired the ownership of the water under the statute of limitations. (Springville *v.* Fulmer, 7 Utah, 450.)

A prior appropriator of water of a certain stream can not so increase his demands and use the water as to deprive a subsequent appropriator of his rights acquired before such increased demands and use.

Justice Cherry, in the case of Becker *v.* Marble Creek Irrigation Co. (15 Utah, 228, 229), said:

> The waters of a prior appropriator are fixed by the extent of his appropriation for a beneficial use, and others may subsequently appropriate any water of a stream not so used by a prior appropriator; and such latter appropriation becomes a vested right, and entitled to as much protection as the former, and a right of which he can not be deprived except by voluntary alienation or forfeiture by abandonment. The rights of the former being thus fixed, he can not enlarge his rights to the detriment of the latter by increasing his demands or by extending his use to other lands, even if used for a beneficial purpose.

As illustrative of the necessity and importance of applying the doctrine of appropriation in this State, hear what Justice Blackburn, in the case of Stowell *v.* Johnson (7 Utah, 225), has to say:

> Riparian rights have never been recognized in this Territory, or in any State or Territory where irrigation is necessary; for the appropriation of water for the purpose of irrigation is entirely and unavoidably in conflict with the common-law doctrine of riparian proprietorship. If that had been recognized and applied in this Territory, it would still be a desert, for a man owning 10 acres of land on a stream of water capable of irrigating 1,000 acres of land or more, near its mouth, could prevent the settlement of all the land above him.

So it is apparent that in the State of Utah the doctrine of prior appropriation is applied to the use of water in its extreme rigor.

WYOMING.

The following are sections of the Wyoming constitution, 1889, relating to water rights (p. 4117, vol. 7, Am. Ch., Con., and O. L.):

> Section 31, article 1. Water being essential to industrial prosperity of limited amount and easy of diversion from its natural channels, its control must be in the State, which, in providing for its use, shall equally guard all the various interests involved (p. 4119, id.).
>
> Section 32, article 1. Private property shall not be taken for private use unless by consent of the owner, except for private ways of necessity and for reservoirs, drains, flumes, or ditches on or across the lands of others for agricultural, mining, milling, domestic, or sanitary purposes, nor in any case without due compensation (p. 4119, id.).
>
> Section 1, article 8. The water of all natural streams, springs, lakes, or other collections of still water, within the boundaries of the State, are hereby declared to be the property of the State (p. 4138, id.).
>
> Section 3, article 8. Priority of appropriation for beneficial uses shall give the better right. No appropriation shall be denied except when such denial is demanded by the public interests (p. 4138, id.).

Section 917, Revised Statutes, 1899, and the following sections give the right to persons, associations, and corporations to appropriate water for beneficial uses by first making application to the State engineer before constructing any ditches or commencing any work for the diverting of the water.

Chapter 68, Session Laws 1909, defines water rights and its preferred uses, and declares that the right to the use of water shall attach to the land.

To the contention that the State could not acquire ownership in the waters of the State by mere assertion, Chief Justice Potter, in the case of Farm Investment Co. *v.* Carpenter (61 Pacific, 259), said:

> In this State the doctrine prevails that the right to the use of water may be acquired by priority of appropriation for beneficial purposes, in contravention to the common-law rule that every riparian owner is entitled to the continued natural flow of the water of the stream running through or adjacent to his lands. The appropriation consists in a diversion of the water by some adequate means and its application to a beneficial use. * * * (Moyer *v.* Preston, 6 Wyo., 308.)
>
> At the outset, however, it is strenuously insisted that the declaration contained in the constitution, that the waters of the natural streams, etc., are the property of the State, is meaningless and of no force and effect. It is argued that the State no more than an individual can acquire property by mere assertion of ownership, and that the United States as the primary owner of the soil is also primarily possessed of title to the waters of the stream flowing across the public lands. This contention demands more than a passing notice. So far as any proprietary rights of the United States are concerned, the question would seem to be settled in favor of the effectiveness of the declaration by the act of admission which embraces the following provision, "and that the constitution which the people of Wyoming have formed for themselves be, and the same is hereby, accepted, ratified, and confirmed." * * * The common-law doctrine of riparian rights relating to the use of water of the natural streams and other natural bodies of water not prevailing, but the opposite thereof, and one inconsistent therewith, having been affirmed and asserted by customs, laws, and decisions of courts, and the rule adopted permitting acquisition of rights by appropriation, the waters affected thereby become, perforce, publici juris. It is therefore doubtful whether an express constitutional or statutory declaration is required in the first place to render them public. * * * If any consent of the General Government was primarily requisite to the inception of the rule of prior appropriation, that consent is to be found in several enactments by Congress, beginning with the act of July 26, 1866, and including the desert-land act of March 3, 1877.

The act of July 26, 1866 (14 Stat., 253, ch. 262, sec. 9), above referred to, which is now section 2339, United States Revised Statutes, and section 2340, Revised Statutes, reads as follows:

> SEC. 2339. Whenever, by priority of possession, rights to the use of water for mining, agricultural, manufacturing, or other purposes have vested and accrued, and the same are recognized and acknowledged by the local customs, laws, and the decisions of courts, the possessors and owners of such vested rights shall be maintained and protected in the same; and the right of way for the construction of ditches and canals for the purposes herein specified is acknowledged and confirmed; but whenever any person, in the construction of any ditch or canal, injures or damages the possession of any settler on the public domain, the party committing such injury or damage shall be liable to the party injured for such injury or damage.
>
> SEC. 2340. All patents granted, or preemption or homesteads allowed, shall be subject to any vested and accrued water rights, or rights to ditches and reservoirs used in connection with such water rights, as may have been acquired under or recognized by the preceding section. (July 9, 1870, 17 Stat., 218.)

The desert-land act of March 3, 1877 (19 Stat., 377), which applies to the States of California, Oregon, Nevada, Washington, Idaho, Montana, Utah, Wyoming, Arizona, New Mexico, and the Dakotas, sanctions the prior appropriation of water and provides that:

> All surplus water over and above such actual appropriation and use, together with the water of all lakes, rivers, and other sources of water supply upon the public lands and not navigable, shall remain and be held free for the appropriation and use of the public for irrigation, mining, and manufacturing purposes, subject to existing rights.

NEVADA.

Chapter XVIII, section 1, laws 1907:

> All natural watercourses and natural lakes, and the waters thereof which are not held in private ownership, belong to the State and are subject to appropriation for beneficial uses.

Section 355, Compiled Laws, 1900:

> All existing rights to the use of water, whether acquired by appropriation or otherwise, shall be respected and preserved and nothing in this act shall be construed as enlarging, abridging, or restricting such rights.

Section 356, Compiled Laws, 1900, provides that no right except usufructuary right can be acquired, i. e., for beneficial purpose, and there shall be no absolute property in waters of lakes or streams.

In the case of Walsh *v.* Wallace (26 Nev., 327) it was held that the act of 1866 did not introduce any new system or policy, but merely confirmed to the owners of water rights on public lands the same rights which they held under the local customs. Chief Justice Massey said further:

> And it has been held by this court that the doctrine of riparian rights is so unsuited to the conditions existing in this State of Nevada and is so repugnant in its operation to the doctrine of appropriation that it is not a part of the law and does not prevail here.

NEBRASKA.

The common-law rules as to rights and duties of riparian owners are in force in every part of the State of Nebraska, except as altered or modified by statute. (Meng *v.* Coffey, 67 Nebr., 500; Crawford *v.* Hathaway, 67 Nebr., 325.)

Section 6821, Cobbey's Annotated Statutes, 1911:

> The water of every natural stream not heretofore appropriated within the State of Nebraska is hereby declared to be the property of the public and is dedicated to the use of the people of the State, subject to appropriation, as hereinbefore provided.

Section 6844, Cobbey's Annotated Statutes, 1911:

> Water for the purpose of irrigation in the State of Nebraska is hereby declared to be a natural want.

Section 6822, Cobbey's Annotated Statutes, provides that water in the streams within the State may be appropriated for beneficial uses, priority of appropriation to have the better right; also that domestic purposes are preferred over any other purpose and agricultural purposes over manufacturing purposes.

Riparian owners on navigable rivers hold to the thread of the stream subject to the public easement of navigation. A riparian right is not an easement, but a part and parcel of the land itself; it is a property right, and as such is entitled to protection the same as private property. (Kinkhead *v.* Turgeon, 74 Nebr., 580; Cline *v.* Stock, 71 Nebr., 70.)

In the case of Crawford *v.* Hathaway (67 Nebr., 325) the court held that the right of a riparian proprietor as such to use water for irrigation purposes is limited to riparian lands. Even though he does not use the water on riparian lands, that does not permit him to divert the water to nonriparian lands.

COLORADO.

Section 5, article 16, constitution, 1876 (p. 507, vol. 1, Am. Ch., Con., and O. L.):

> The water of every natural stream not heretofore appropriated within the State of Colorado is hereby declared to be the property of the public; and the same is dedicated to the use of the people of the State, subject to appropriation as hereafter provided.

Section 6, article 16, constitution, provides that priority of appropriation gives the better right as between those using for the same purpose, and the right to divert unappropriated streams shall never be denied. (When there is not sufficient water, domestic purposes have preference over any other purpose and agricultural over manufacturing purposes.)

Section 7, article 16, constitution, provides for the acquiring of right of way over public, private, and corporate lands for ditches, canals, and flumes for domestic purposes, irrigation, mining, manufacturing, and drainage, upon the payment of just compensation.

Section 2256 et seq. (ch. 69), Mills's Annotated Statutes, 1891, relates to the appropriation and use of water.

The common-law doctrine is also inapplicable to the State of Colorado. Said Chief Justice Hoyt, in the case of Fort Morgan Land and Canal Co. *v.* South Platte Ditch Co. (18 Colo., 1):

> Under our constitution the water of every natural stream in this State is deemed to be the property of the public. Private ownership of water in the natural stream is not recognized. The right to divert water therefrom and apply the same to beneficial uses is, however, expressly guaranteed. By such diversion and use a priority of right to the use of the water may be acquired.

And Justice Helm, discussing the doctrine of prior appropriation in the case of Wheeler *v.* Irrigation Co. (10 Colo., 582), says:

> Our constitution dedicates all unappropriated waters in the natural streams of the State to the use of the people, the ownership thereof being vested in the public. We shall presently see that after appropriation the title to this water, save, perhaps, as to the limited quantity that may be actually flowing in the consumer's ditch or lateral, remains in the general public, while the paramount right to its use, unless forfeited, continues in the appropriator.

See also the following cases: Strickler *v.* Colorado Springs (16 Colo., 67); Coffin *v.* Left Hand Ditch Co. (6 Colo., 446, 447); Yankee *v.* Nichols (1 Colo., 551).

OKLAHOMA.

Section 3915 of the Compiled Laws of 1909 declares the rivers and streams of the State to be the property of the public, and that use of the water in the streams may be acquired by appropriation.

Section 3918, Compiled Laws, provides for the procuring of right of way over private and public lands for irrigation, etc., by condemnation.

Section 3920, Statutes 1909:

> The appropriation of water must be either for irrigation, mining, milling, construction of waterworks for cities and towns, or stock raising.

Section 23, article 2, constitution, 1907 (p. 4275, vol. 7, Am. Ch., Con., and O. L.):

> No private property shall be taken or damaged for private use with or without compensation unless by the consent of the owner, except for private ways of necessity or for drains and ditches across lands of others for agricultural, mining, or sanitary purposes, in such manner as may be prescribed by law.

In regard to appropriation of waters for beneficial uses, Chief Justice Burford, in Gates *v.* Settlers' Milling, Canal & Reservoir Co. (91 Pac., 858), said:

> It seems the settled law in States where irrigation problems have been dealt with that, in order to acquire a vested right in the use of water for such purposes from the public streams, three things must concur: There must be the construction of ditches or channels for carrying water; the water must be diverted into the artificial channels and carried through them to the place to be used; and it must actually be applied to beneficial uses, and he has the best right who is first in time.

OREGON.

The act for admission of Oregon, February 14, 1859 (11 Stat., 383), section 2, declares:

> * * * And said rivers and waters, and all the navigable waters of said State, shall be common highways and forever free, as well to the inhabitants of said State as to all other citizens of the United States, without any tax, duty, impost, or toll therefor.

Section 6525, Lord's Oregon Laws, 1910:

> The use of the water of the lakes and running streams of the State of Oregon for general rental, sale, or distribution for purposes of irrigation, and supplying water for household and domestic consumption, and watering live stock upon dry lands of the State, is a public use, and the right to collect rates or compensation for such use of said water is a franchise. A use shall be deemed general within the purview of this act when the water appropriated shall be supplied to all persons whose lands lie adjacent to or within reach of the line of the ditch or canal or flume in which said water is conveyed, without discrimination other than priority of contract upon payment of charges therefor, as long as there may be water to supply.

Section 6526, Lord's Oregon Laws, 1910, gives to corporations the right to appropriate and to divert water from its natural bed or channel, to condemn land for the purpose of right of ways for ditches, and to condemn the rights of riparian proprietors upon the lake or stream from which such appropriation is made.

Section 6551, Lord's Oregon Laws, 1910:

> The use of the water of the lakes and running streams of the State of Oregon for the purpose of developing the mineral resources of the State, and to furnish electrical power for all purposes, is declared to be a public and beneficial use and a public necessity, and the right to divert any unappropriated waters of any such lakes or streams for such public and beneficial use is hereby granted.

Section 6575, Lord's Oregon Laws, 1910:

> All water within the State from all sources of water supply belong to the State.

Sections 6594 and 6595 provide that all waters within the State may be appropriated for beneficial use, and preserves the vested rights of riparian proprietors who have made actual application of water for a beneficial use provided such use has not been abandoned for a continuous period of two years. (Enacted 1909.)

In this State it has been held that a riparian owner holds to high-water mark on navigable streams and to the middle of nonnavigable streams.

Each riparian owner is entitled to a reasonable use of the water for domestic purposes and also, in addition thereto, a reasonable use for irrigation, even though such use may diminish the flow to lower riparian owners. (Shaw *v.* Oswego, 10 Oreg., 371; Jones *v.* Conn, 39 Oreg., 30.)

In the case of Kahler *v.* Campbell (13 Oreg., 596) it was held that where two settlers on Government land severally divert a stream at a point above them, and subsequently one of them acquires title to the land at that point, prior appropriation and not common-law riparian rights govern.

A settler upon a nonnavigable stream may elect to rely upon his riparian rights or make an appropriation; but he can not do both. (Williams *v.* Altnow, 51 Oreg., 275.)

EXHIBIT B.

[Senate Document No. 57, Sixty-second Congress, first session.]

Memorandum of acts of Congress concerning power privileges at Government dams.

Names of rivers.	Grantee.	Date of act.	Provisions of act.	By whom improvement made.
Muskingum, Ohio..	General authorization.	Aug. 11, 1888 (25 Stat., 417).	The Secretary of War authorized and empowered to grant leases or licenses for the use of the water powers, at such rate and on such conditions and for such periods of time as may seem to him just, equitable, and expedient.	United States.
Green and Barren, Ky.	.....do............	Sept. 19, 1890 (26 Stat., 447).	The Secretary of War authorized and empowered to grant leases or licenses for the use of the water powers, at such rate and on such conditions and for such periods of time as may seem to him just, equitable, and expedient, with added condition that leases are not to extend beyond the period of 20 years.	Do.
Cumberland, Tenn., at Lock No. 1.	.....do............	June 13, 1902 (32 Stat., 408).	The Secretary of War authorized to grant leases or licenses for the use of the water power at such rate and on such conditions and for such periods of time as may seem to him expedient. (See also act of June 28, 1902.)	Do.
Tennessee River at Hales Bar.	City of Chattanooga or other private corporation.	Apr. 26, 1904 (33 Stat., 309).	Grantee to purchase necessary lands and deed same to United States to construct lock and dam and give them to United States completed, free of all cost except expenses connected with preparation of plans, superintendence, cost of lock gates, etc., and to furnish United States free electric current for operating locks and for lighting. Grantee to have use of water power for 99 years.	Private.
Mississippi at Des Moines Rapids.	Keokuk & Hamilton Water Power Co.	Feb. 9, 1905 (33 Stat., 712).	Grantee to build a lock and dry dock and appurtenant works, and United States to have ownership of them. Grantee to provide suitable power plant for lighting and operating the lock, dry dock, and appurtenances, and to provide fishways.	Do.
Cumberland and tributaries.	Cumberland River Improvement Co.	Mar. 3, 1905 (33 Stat., 1132).	Right to collect tolls to cease at expiration of 40 years from date of completion of Lock and Dam No. 21, Cumberland River, and United States may then assume the possession, care, operation, maintenance, and management of the lock or locks constructed by the corporation, but without in any way impairing the right or ownership of the water power and dams created by the corporation.	Do.

Memorandum of acts of Congress concerning power privileges at Government dams—Continued.

Names of rivers.	Grantee.	Date of act.	Provisions of act.	By whom improvement made.
Coosa, Ala., at Lock No. 2.	General authorization.	May 9, 1906 (34 Stat., 183).	United States reserves right to control dams and pool level and to construct locks. Land for lock and approaches to be conveyed to United States free of charge, and United States to have free water power for building and operating locks. Fishways to be constructed.	Private.
White, Ark., at Lock No. 1.	Batesville Power Co.	June 28, 1906 (34 Stat., 536).	The Secretary of War authorized and directed to fix from time to time reasonable charges to be paid for use of power.	Do.
Coosa, Ala., at Lock No. 12.	Alabama Power Co.	Mar. 4, 1907 (34 Stat., 1288).	Dam to be built so that the United States may construct a lock in connection therewith. The grantee to have the right to use Government land necessary for the construction and maintenance of the dam and appurtenant works, to convey to the United States free of cost such suitable tract or tracts as may be selected by the Chief of Engineers and the Secretary of War for establishment of locks and approaches, and to furnish the necessary electric current to operate locks and for lighting grounds.	Do.
St. Marys, Mich....	General authorization.	Mar. 3, 1909 (35 Stat., 821).	Water power to be leased by the Secretary of War upon such terms and conditions as shall be best calculated, in his judgment, to insure the development thereof. A just and reasonable compensation to be paid for use.	United States.
Wabash, Ind., at Mount Carmel.	.....do............	Mar. 3, 1909 (35 Stat., 819).	Secretary of War authorized to grant leases or licenses for periods not exceeding 20 years at such rate and on such conditions as may seem to him just, equitable, and expedient.	Do.
Mississippi, from St. Paul to Minneapolis.	.....do............	June 25, 1910 (36 Stat., 659).	A reasonable compensation for leases of water power shall be secured to the United States.	Do.
Coosa, Ala., at Lock No. 4.	Ragland Water Power Co.	Feb. 27, 1911 (36 Stat., 939).	The dam to be property of the United States free of charge. Grantee to have water-power rights for 50 years. United States to have right to construct a lock and to have free electric current for operating and lighting. Grantee to raise height of dam at Lock No. 4 and to stop leaks. Beginning in 1925, grantee shall pay to United States $1 per 10-hour horsepower, with an increase if natural flowage is increased by storage reservoirs.	Private.
Wabash, at Mount Carmel. Ill.	Mount Carmel Development Co.	Feb. 14, 1889 (25 Stat., 670). Feb. 12, 1901 (31 Stat., 785.)	Withdrawal of water shall be under the direction and control of the Secretary of War.	United States.
Rock River near Sterling.	Sterling Hydraulic Co.	Mar. 2, 1907 (34 Stat., 1103).	Secretary of War authorized to permit erection of a power station in connection with United States dam. Grantee to waive certain claims against United States.	Do.

Memorandum of acts of Congress concerning power privileges at Government dams—Continued.

Names of rivers.	Grantee.	Date of act.	Provisions of act.	By whom improvement made.
White, Ark., above Lock No. 3.	J. A. Omberg, jr.	June 29, 1906 (34 Stat., 628).	Grantee to purchase lands, construct lock and dam, and give them to the United States free of charge and furnish United States electric current to operate locks, light grounds, etc. Grantee to have use of water power for 99 years.	Private.
Black Warrior River, Ala., Lock and Dam No. 17.	General authorization.	Aug. 22, 1911 (p. 32 laws, 1st sess. 62d Cong.).	Secretary of War authorized to change detailed plans and specifications so as to increase height of pool level over the dam crest of Lock No. 17, and for the development of water power.	United States.

NATIONAL CONTROL OF SURPLUS WATER POWERS

INCIDENTALLY CREATED IN THE ERECTION OF IMPROVEMENTS IN AID OF NAVIGATION

VIEWS OF MR. CULBERSON

ON S. RES. 44, A RESOLUTION DIRECTING THE COMMITTEE ON THE JUDICIARY TO REPORT TO THE SENATE ON THE POWER OF THE GOVERNMENT OVER THE DEVELOPMENT AND USE OF WATER POWER WITHIN THE RESPECTIVE STATES

VIEWS OF MR. O'GORMAN.

The title, ownership, and dominion over navigable waters are vested in the several States abutting thereon, subject to the rights delegated by the States to the Federal Government.

The power conferred by the Constitution of the United States upon Congress "to regulate commerce" comprehends control of the rivers for that purpose only. Before the Revolution the right of dominion and ownership in the rivers, bays, and arms of the sea and the soils under them resided in the Crown, and, as stated by Chief Justice Taney in the leading case of Martin *v.* Waddell (16 Peter, 367), "when the Revolution took place the people of each State became themselves sovereign; and in that character hold the absolute right to all their navigable waters and the soils under them for their own common use, subject only to the rights since surrendered by the Constitution to the General Government."

To the same effect Shively *v.* Bowlby (152 U. S., 1) and Knight *v.* U. S. Land Association (142 U. S., 161).

In Illinois *v.* People (146 U. S., 387) the court said:

> It is the settled rule of this country that the ownership of, and dominion and sovereignty over, lands covered by tidewaters within the limits of the several States belong to the respective States within which they are found, and with the consequent right to use or dispose of any portion thereof, when that can be done without substantial impairment of the interest of the public in the waters, and subject always to the paramount right of Congress to control their navigation, so far as may be necessary for the regulation of commerce with foreign nations and among the States. This doctrine has often been announced by this court and is not questioned by counsel of any of the parties.

In Kansas *v.* Colorado (206 U. S., 46) it was said:

> The Government of the United States is one of enumerated powers; that it has no inherent powers of sovereignty; that the enumeration of the powers granted is to be found in the Constitution of the United States, and in that alone; that the manifest purpose of the tenth amendment to the Constitution is to put beyond dispute the proposition that all powers not granted are reserved to the people, and that if in the changes of the years further powers ought to be possessed by Congress they must be obtained by a new grant from the people. While Congress has general legislative jurisdiction over the Territories and may control the flow of waters in their streams, it has no power to control a like flow within the limits of a State, except to preserve or improve the navigability of the stream; that the full control over those waters is, subject to the exception named, vested in the State.

In United States *v.* Rio Grande (174 U. S., 709) Mr. Justice Brewer, alluding to the limited and restricted function of the National Government in relation to navigation, said:

> The Hudson River runs within the limits of the State of New York. It is a navigable stream and a part of the navigable waters of the United States, so far at least as from Albany southward. One of the streams which flows into it and contributes to the volume of its waters is the Croton River, a nonnavigable stream. Its waters are taken by the State of New York for domestic uses in the city of New York. Unquestionably the State of New York has a right to appropriate its waters and the United States may not question such appropriation, unless thereby the navigability of the Hudson be disturbed.

These authorities establish the proposition that the ownership of the waters and soil of navigable streams is in the State, and that the Federal Government has no right or power to interfere with the State's property except for the purpose of preserving or improving the navigability of a river. The surplus water or power produced as an incident to the public improvement made by the Government in aid of navigation belongs to the State. Under the commerce clause the Government acquires no title or property interest whatever in the river or bed thereof. The Constitution confers a naked power to regulate commerce; nothing more. The title of the State remains unimpaired, both as to the water and as to the soil. There is no power expressed or implied in the Constitution justifying the claim that the Federal Government may appropriate such surplus water or power. The assertion of such a right would constitute an interference with and confiscation of the property of the State by the Federal Government. The State is the owner of its natural resources, and, within its properly reserved power, has an absolute right to make use of its property, including the water power of its rivers, subject only to the limitation that it can not impede commerce and navigation.

The right of the Government to sell or lease its own property does not justify this attempted appropriation of the property of a State. Section 3, article 4, of the Constitution is a grant of power to the United States of control over its own property, but what belongs to the State can not be the property of the Federal Government.

The United States is not authorized by any of the enumerated powers to engage in the business of manufacturing, transmitting, or selling electrical power, whether at cost or for a profit; and the commerce clause was never designed to permit the Federal Government to secure revenue or profit as an incident to the promotion of the facilities of navigation.

Federal expenditures must be reimbursed exclusively through taxation. The function of taxation is to secure sufficient money to perform the delegated governmental functions. This power was limited by section 8, article 1, as follows:

> The Congress shall have the power to lay and collect taxes, duties, imposts and excises, to pay the *debts* and provide for the common defence and general welfare of the United States; but all duties, imposts and excises shall be uniform throughout the United States.

The Constitution merely permits regulation in the interest of navigation and commerce by the Federal Government. Regulation does not mean appropriation or confiscation of the rights of a State in its natural resources.

The contention in favor of the right of the Federal Government to lease the excess water power is without authority or reason to sustain it. Kaukana Co. *v.* Green Bay (142 U. S., 254) and Green Bay Co. *v.* Patten (172 U. S., 58) are not in point and do not support the proposition. The commerce clause was not involved in either case. In the former case the controversy arose between a State and a riparian owner, and in the latter case the right of the Federal Government grew out of a grant and was not based upon the commerce clause.

The claim is made that the Government's improvement creates the excess power, but the fact is that the water that produces the power concededly belongs to the State, and the only effect of the improvement by the Government is to enlarge the potentiality of the State's water at the point of improvement.

The Government has no more right to claim ownership of the increase of the water than the State or a riparian owner would have to require the Government to make compensation for impairment of the stream at other points resulting from the improvement. Where depreciation is necessarily caused by the improvement for navigation the State must bear the loss; where appreciation results from the improvement the State is entitled to the gain. In either case the property affected belongs to the State. As we have seen, the title of the State includes the water as well as the bed of the rivers. The right of the State, under its title, to appropriate the water, subject only to the power of the Government under the commerce clause, is recognized by the cases cited, and the State's title necessarily excludes dominion over its waters by the Government except for the single purpose above indicated. The Government may improve navigation; it can not confiscate the property of the State.

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64TH CONGRESS } SENATE { DOCUMENT
1st Session } { No. 249

THE STRATEGIC VALUE OF INLAND WATERWAYS

AN ADDRESS

DELIVERED AT THE

EIGHTH ANNUAL CONVENTION OF THE ATLANTIC DEEPER WATERWAYS ASSOCIATION, HELD AT SAVANNAH, GA.
NOVEMBER 9-12, 1915

By

HON. WILLARD SAULSBURY

U. S. SENATOR FROM DELAWARE

PRESENTED BY MR. OLIVER
JANUARY 20, 1916.—Ordered to be printed

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THE STRATEGIC VALUE OF INLAND WATERWAYS.

AN ADDRESS BY HON. WILLARD SAULSBURY,

United States Senator from Delaware,

AT THE EIGHTH ANNUAL CONVENTION OF THE ATLANTIC DEEPER WATERWAYS ASSOCIATION, HELD AT SAVANNAH, GA., NOVEMBER 9–12, 1915.

I am not going to consume the time of this association by proving once more the great, the uncontradicted, and the undeniable advantages to the Government and the people of the United States and the eastern seaboard of a deep sea-level canal between the Delaware and Chesapeake Bays. The commercial, naval, and military importance of this canal has been certified to and proven time and again.

Some of those who have examined and reported on the subject are Gen. Casey, Col. Craighill, Gen. Bixby, Col. Rossell, Maj. Raymond, Col. Black, Col. Flagler, Capt. Turtle, Gen. Humphreys, Benjamin H. Latrobe, Admiral Dewey, Gen. Macomb (present head of the War College), and Gen. Tasker H. Bliss (present Acting Chief of the General Staff).

A finer lot of men or abler engineers could not be found anywhere, and no business man would hesitate to accept their conclusions or to follow their advice.

Some of the things they have said in the numerous reports are these:

In 1886 Col. Craighill, of the United States Engineer Corps, reported:

> No argument is necessary to show the great value in time of war with a maritime power of such an interior line of communication between the great Chesapeake and Delaware Bays and their tributary streams as this canal would be.

The Committee on Railways and Canals of the House in that year said:

> Its entire feasibility has been definitely determined by three Government surveys ordered by Congress.

In 1894 the President, under authority given by Congress, appointed a board, among the members of which were Brig. Gen. Casey, Col. Craighill, and Admiral Dewey, then a captain in the Navy, and this board, having exhaustively considered the subject, reported:

> The most feasible route * * * is substantially located upon the line of

In another report appeared the following:

> It will be doubted by no one that a deep-water connection between the two bays would be of vast importance in the contingency of war with a maritime nation.
>
> It may be assumed that if a war with one of the great naval powers should arise, and the mere appropriation of the money could provide such a channel of communication between the bays, the amount would be at once provided without hesitation. That would, however, be too late.

In the latest report, not yet published, our military authorities declare this proposed deepened canal to be of the very greatest importance. I shall refer to that report hereafter.

I shall not weary you with the statistics in the multitude of favorable reports on this canal, but I am going to give you the latest official news on the subject and the result of my consideration of some matters in connection with it, which I have not spoken of in the Senate or any previous meeting on waterways.

Our country has awakened from the absolutely self-satisfied condition which produced the feeling that we can "lick the world." The big farmer boy has been forced into a front seat at the biggest and most brutal international prize fight in all history. He has learned that his 200 pounds and upward of weight and his great muscles, developed only for peaceful pursuits, can be beaten to a pulp in short order if either of the fighters jump the ropes and get after him. He can't get away from the prize fight, as he would like to do, and he sees the fighters scowling at him. If that big, awkward farmer's boy could get a small section of a hickory sapling to defend himself with when a fighter or his friends jump on him and try to grab his watch, he would be a foolish boy not to get the means of defense. [Applause.] Nobody wants to turn that good-natured, friendly farmer's boy into a prize fighter—we all want him to be just what he is, as nearly as he can—but prize fights are going on, and that boy can't get away from any brute of a pugilist who gets after him, and if the prize fighter gets him now he's certain to be licked.

Well, most of us have about determined to see that that good-natured boy is supplied with a good piece of fence rail, anyway, so he can swat anybody who jumps on him and have a chance of at least being let alone. I really wonder if our pacifist friends would refuse to hand that piece of fence rail to the boy. "Oh," they say, "he'll never need it." We all hope so, but let us exercise our brains. [Applause.]

Some time ago a member of the general staff of one of the great nations now at war, considering the possibility of successfully attacking this country, said that his nation was in a position to conquer the United States. He declared that there were many splendid landings on our eastern seaboard, where it was not possible to concentrate our troops, even if we had a sufficient number, in a relatively short time, and that it was feasible for an invading corps to conduct its operations at such points with the cooperation of their fleet. No naval war, he said, could be carried on successfully against the United State without at the same time inaugurating an action on land, and he believed it a certainty that a victorious assault could be made on the Atlantic coast, tying up the importing and exporting business of the whole country, bringing about such an annoying condition that the Government would be willing to treat for peace. He doubted whether anything could be gained in occupying for any length of time so large a stretch of land as the United States, and said that one or two of our provinces, as he called them, might be occupied by invaders, and this alone would not move America to sue for peace. But, he continued, invaders would have to inflict real material damage by injuring the whole country through successful seizure of many of the cities of the Atlantic seaboard, in which the threads of the entire wealth of the country meet.

For enterprises of this sort, said he, small land forces would answer our purpose. In close conjunction with the fleet, these forces could quickly seize important and rich cities, interrupt supplies, disorganize governmental affairs, confiscate war and transport supplies and, lastly, impose heavy indemnities.

We may assume that a man of sufficient capacity to be appointed a member of the general staff of one of the warring nations of Europe was not writing a professional military article on the possibility of a successful invasion of our country without careful technical consideration of the subject. Professional men are not willing to subscribe their names to articles dealing with professional matters unless they believe the statements and reasoning of the articles true and sound. This military writer was not dealing with the subject of an invasion of our country as a scare-head newspaper article might, but so far as his ability permitted outlined the chances for and against the success of a hostile expedition against us. He said our battle fleet has every prospect of victoriously defeating the forces of the United States * * *. After the defeat of the United States fleet the great extension of unprotected coast line and powerful resources of that country would compel them to make peace.

And dealing with the question of the possibility of such an expedition being determined on, he said with the United States, in particular, political friction, manifest in commercial aims, has not been lacking in recent years, and has, until now, been removed chiefly through acquiescence on our part. However, as this submission has its limits, the question arises as to what means we can develop to carry out our purpose with force, in order to combat the encroachment of the United States upon our interests.

It seems to me the statement of so eminent a military authority as a member of the general staff of a European nation draws us more closely than most of us have appreciated toward the vortex of the awful struggle in which practically the whole of Europe is involved. Articles of the character of that from which I have quoted show that no idle dreamer is arousing fears in our fellow countrymen when he urges reasonable preparedness for defense. No one who reads history can fail to understand that a great unprepared neutral nation, which has grown rich during the period of warfare among its neighbors, may not fold its arms and rely upon its conscious position of strict neutrality during preceding wars and congratulate itself that in no way can it be involved in strife.

This I believe to be a real danger. We will probably at the end of the European war be admittedly the richest nation in the world. Upon us a powerful victor in that struggle could levy unheard-of indemnities for alleged unfriendly acts during war, and we will at the end of this war, by actually maintaining strict neutrality in accordance with the principles of international law, undoubtedly have incurred the dislike and possibly the hatred, speaking nationally, of foreign governments.

The claims of many of our people, their honest belief that the great nations of Europe will be so exhausted when this war is concluded that they will be unable to attack us, does not demand the unhesitating concurrence of my intelligence. The end of our own great Civil War, the War between the States, continued as it was for four years, exhausting our resources and impoverishing our people, found us in the strongest military condition we have ever been. A young, enthusiastic, and distinguished general at the end of that war unhesitatingly proposed to Gen. Grant in his enthusiasm, "Now, let us go North and take Canada." It required only that we should notify Louis Napoleon, then controlling the destinies of France, possibly at the height of his power, believed to be invincible in Europe, to compel him to abandon his dreams of empire in Mexico.

No one could deplore more than I that which my intelligence persuades me is necessary, namely, the consideration of increase of our national forces to enable us to defend our country against a foreign attack. No one will go further than I to bring about a state of lasting peace throughout the world, and particularly a state of peace so far as our country is concerned. I am opposed to establishing posts of offense far from the seacoast of our country, but I do regard it as essential that at the termination of this awful war in Europe our country shall be prepared to repel all naval attacks upon us or the invasion of our country.

We are yet unhappily in a position in the world, as shown by the awful calamity which has come upon the European nations, where some nation, thinking itself prepared for the struggle, will bring about international conflict, and try as we may to carry out our ideals of peaceful progress, we can not do this if other strong nations follow other ideals of government. Other nations, possibly all of those which have great naval or military power, regard our peaceful progress and prosperity as a condemnation of their method, and when the present unholy war terminates the victor in the struggle, unless all parties to it shall be utterly exhausted, would probably be able to invade our country and enforce its will upon us.

I believe it is most important that we shall continue to furnish the example of a peaceful, progressive nation to this warring world; that we, by our example, educate the people of other nations toward our ideals, and if we would do this, we can not submit to affront, attack, and possible conquest and thus have our Government and the great example we furnish utterly destroyed. [Applause.]

We can not rely upon our conscious rectitude of action and intention to protect us from the hatred of the belligerents or expect them to agree that we have maintained a position of disinterested friendship. My belief is when this great war ends, probably by insisting merely upon the rights of neutrals as recognized by international law, we have incurred the enmity of all and that this feeling of hostility will survive for a period of years. Then will come the time we must stand prepared to resist aggression, and the levy upon us of such huge indemnities as might impoverish our land.

Our relations to-day with the warring European nations are not very dissimilar, mutatis mutandis, to those of 100 years ago, when the Napoleonic wars ravaged the Continent and England was ruling the seas, as now.

We came almost openly to war with France and did have war with England.

Modern warfare and future wars will not be successfully conducted by attacking far outlying territory, the taking of which would not imperil the business and political life of the country attacked. Any successful assault upon our country, or one which would justify the effort in making it, would occur at some point where business, commercial, or political activities of this Nation could be so disorganized and upset that peace would be sought by us to avoid the tremendous losses involved by a continuation of hostilities; and the consideration of losses which might occur would be the determining factor as to what indemnity might be paid by us to relieve us from the effect of even a temporarily successful invasion.

Portions of the territory of any nation far removed from the nerve centers of its business, military, or political activities might be taken, occupation of such places might be continued for quite a long time, but eventually the nation, rallying to the defense of its territory, would be able to drive away invaders and rescue any portion of its territory which might be held. Attacks which might be made upon our country by a foreign foe in eastern New England or on our southern coast, where sparsely populated, would not affect our powers of resistance and our ultimate victory.

But if the great industries, spread so thickly over the territory and lying close to the Atlantic seaboard, from the east end of Long Island Sound to the Virginia Capes, could be paralyzed even temporarily, the tremendous embarrassment which would arise to us as a nation would be so felt that it might properly be considered how much we would pay to be relieved of this embarrassment. More millions of people are thickly congregated and more necessary manufacturing is carried on in the strip of country beginning with the east end of Long Island Sound and extending to Chesapeake Bay and the country immediately tributary thereto than any section of America.

The invasion and occupation of any portion of continental America by a foreign enemy would, of course, be only temporary, but the successful invasion of any part of this strip described would be much more disastrous than elsewhere.

The efficient military general staff officers of foreign Governments have studied the question of hostile operations against this country, as they probably have against all others, and I have shown the conclusions one of them has reached. Probably these conclusions are correct.

Assuming that they are, I believe that the points likely to be attacked may be reasonably located. We may assume that New York Harbor is reasonably well defended and that no enemy would attempt to make a base in a well-defended place (by either fleet or army) if an undefended base could be readily seized. Our fleet would probably be assembled in the vicinity of New York and would be able to defend vigorously any landing attempted from Narragansett Bay to

North River. Eastern New England would not, as we have seen, offer the rewards which would come in the way of indemnities which possibly a descent upon our shores at a point nearer the nerve centers of the country would produce.

The only undefended harbor within striking distance of New York on which a certain attack could be made and which would easily fall is located at the capes of Delaware (Lewes). Here an efficient base could be secured and its occupation would close the water transportation of Philadelphia and the other cities on the Delaware River and separate from the main fleet such war vessels as had been held in the Chesapeake. The Delaware capes are only 150 miles from New York. The country is very productive and the ordinary supplies of food available and which could be seized would be reasonably sufficient to sustain a large invading force without difficulty for an indefinite period. An important north and south rail line extends through the length of the peninsula from Wilmington to Cape Charles, Va., and an enemy invading this section could readily break this line, which is only about 30 miles distant by direct line from Lewes. Less than a hundred miles up the bay and river from Lewes are great shipyards, powder works, munition factories, oil pipe lines, steel manufacturing plants, and hundreds, possibly thousands, of machine shops, essential for the manufacture of offensive and defensive material and machinery in case of war.

The waterway is defended at one point only by batteries on the Delaware and New Jersey shores and a midstream fortification which might be effective, aided by mines in the channel, in stopping runbys of offensive vessels. These fortifications, however, could be taken in the rear by sufficient force, and a single hostile cruiser lying in the Delaware River at any point for 25 miles below Philadelphia could practically command and put out of use all direct north and south lines of railroad transportation now in existence.

Without claiming any technical military knowledge, I think reason shows that the point of attack which would be selected to most greatly embarrass this country has been pointed out. The Chief of our War College, the Chief of the General Staff of our Army, the Secretary of War, have all considered the possibility of this invasion and say " they find the undefended harbor at Lewes, Del., makes such a landing (of hostile invading force) a probability," and suggest what measures can be taken to make such landing ineffective and therefore improbable. By the defense of this vital portion of our seaboard assurances can be best given by the National Government that our national welfare shall not be threatened by any enemy we may have from overseas, and right here the activities of the Government may be best and most economically displayed in insuring our country against disaster in case of a foreign war.

It is really remarkable when one's mind gets to working on a concrete thing how things one has hardly considered at the time loom larger as possibly matters of real importance. In this territory I have described I have from time to time heard of strangers of other nationalities appearing, dwelling for a while, and disappearing in unusual and unexpected ways. A music master appears in a country community and drives from house to house over considerable area, giving lessons in music. He leaves there after a time.

No one knows why he left or where he went, and
of he is a chemist employed in an important po
establishment. It becomes a fact firmly fixed in
wonder how a highly educated chemist, able to ear
happens suddenly in a small community to be gi
music lessons. Can it be, one is bound to wonder, t
of the roads and watercourses, the terrain, as milit
cally call it, interested this highly trained scientific
about the country giving his music lessons? I kno
one swallow does not make the summer, and al
music teacher from my mind when another person of
ality is reported in the same district, living comfo
producing practically nothing because of his lac
knowledge, and the farmer likes to drive around
where to fish or talk when crops should be gettin
lows may not even make the summer, but two sw
than one in making us believe that the summer ma
[Applause.]

I'm afraid some of my friends who are willing t
boy try to lick the professional prize fighters wi
"seeing things." Well, I am, but not in the way t

I've been seeing and talking good things about th
years now, and there are some new things I hav
going to talk about now.

When the river and harbor bill of 1913 came ove
it had in it an absolutely inadequate provision for
By properly representing the matter to the Com
of the Senate, convincing them of the great value i
commerce of the country, I succeeded in getting a p
in the bill providing for the acquisition by the Go
canal. You all know what happened. The con
conducted by a few Senators, making antipork-b
who had exhausted all sensible argument, so tired
of Congress, which had already set during the s
winter snows, as to cause the abandonment of that a
for the year, and in lieu thereof the appropriation
continue only necessary work then under way by
ment.

Practically the same thing occurred at the next se
which adjourned on the 4th of last March, except th
bill, before it was talked to death, a provision req
tary of War to condemn this canal for Governmen
priating a sufficient amount of money to carry on
Even that was killed by a renewal of the filibust
delays, and aggravations which occurred from th
who opposed en bloc works of great necessity as
some that were not so meritorious.

What I said about them for publication was th
should ever be attacked, and because of the failure t
passage of its vessels between these two great bays
a naval disaster due to our inability to concentrat
who prevented the building by the Government o
between the Delaware and Chesapeake Bays would

disavowing their responsibility for their unpatriotic efforts as the European nations are now in endeavoring to escape responsibility for bringing on the present war.

Well, these men again succeeded in beating the canal for the time being. Knowing no intelligent criticism could be made to the proposition to buy this canal, when I found it impossible in the last Congress to start this great project by an appropriation, feeling absolutely assured that no qualified engineer would make an unfavorable report on the project, I prevailed upon the Senate to pass a resolution calling upon the Secretary of War for the opinions of competent engineers as to the advantages or disadvantages, commercial, naval, or military, of the acquisition by the Government of this canal. I pinned my faith on the report that these officers would make. I believed that no intelligent man with military knowledge would make a report which would not favor the project I was advocating. My confidence has been justified, for there is now lying in the office of the Vice President of the United States the report of the Secretary of War, made pursuant to the resolution which the Senate adopted, and I am going to tell you to some extent what it is.

This report has not yet been published, but it is a public document. This report when the Senate meets will be laid before it for consideration. This report will be in the hands of the Senate committees when they are considering what expenditures shall be made for the defense of this country and the promotion of its commerce, and in this report the highest military authorities, charged with the duty of advising on measures to be taken for the defense of this country, declare that such canal will be of very great military importance and constitute an important part of our coast-defense system.

They go into details regarding the concentration of naval forces to resist invasion and of the great advantage an improved canal would be here as an obstacle in preventing a land attack through this section on Wilmington and Philadelphia. They believe that a hostile expedition would probably be landed at the fine, undefended harbor at Lewes, Del., and that a sea-level canal along the line of this canal would be of very great military importance for the movement of craft which constitute an important part of our coast-defense system, and would also form an almost impassable obstacle to the passage of troops advancing to attack Wilmington or Philadelphia, and, moreover, would be of great use in transporting men and material for the Coast Artillery to both the bays.

This enlarged canal they say is a necessity for the larger project of one connecting the Delaware with New York Bay across New Jersey, a distance of 34 miles, and that a canal through the whole distance would make the landing of hostile troops almost impossible between Narragansett and Chesapeake Bays.

Has my confidence in this project been justified or not, and can you attribute lack of interest in this great project, when these facts are generally known, to anything but unpatriotic motives?

I am greatly gratified at the result which has been produced by this resolution. I believe the report of the Secretary of War, who, with the Chief of the General Staff, concurs in this report prepared by the Chief of the War College, will cause this great project to be taken up. The effect of the completion of this great work extends so far and is so vast that I hesitate to further elaborate on it for fear I might seem too enthusiastic as to results.

It is the duty of the Federal Government to defend our shores. We are warned by foreign writers that successful attacks might be made upon us. The places that might be attacked are in some measure indicated. Our own military authorities concur and specifically state that an oversea attack would probably be made in Delaware on the fine and absolutely undefended harbor at Lewes.

How may we, interfering as little as possible with the usual industrious and orderly lives our people lead, taking as little as possible from the common funds, to which we all contribute, for unproductive works—only so much as is necessary to insure the successful defense of our country—make easier the successful defense of our country in case we are attacked? We have no mean Navy now, and I am glad to know, or at least feel assured, that we are to have a better and stronger one. If our present Navy, or the better and stronger Navy we intend to have, can be concentrated readily at any point from Narragansett Bay to the Virginia capes, if we can readily move troops and munitions of war for the defense of this section of our Atlantic seaboard, if we can surely protect the great industries of the country in this section, we are multiplying many times the efficiency of our national forces; and if we may do this, at the same time enlarging our commercial facilities and cheapening transportation of the ordinary commodities in use by all our people, it seems to me no better line toward national preparedness can be followed. [Applause.]

It is a maxim of our naval and military experts that the power of a fleet increases in proportion to the square of its units. That is to say, if we had five warships of given power involved in a naval action at the mouth of the Delaware Bay, the chances of success would be dependent upon these five ships alone. If a naval action at the Capes of the Delaware was expected and five ships of equal power and efficiency could be joined to those there present and engage in the same action, the combined force would not be relatively twice as strong as the original fleet, but the juncture of the two squadrons would raise the relative efficiency and probabilities of success in such naval action to the equivalent of four times the power of the original fleet, joined only by an equal number of vessels.

Extend that possibility along the vital stretch of our Atlantic seaboard for hundreds of miles and see what advantages protected means of quick communication would afford. We will probably always have some ships in the Delaware Bay and always in Chesapeake Bay. We will always have some in New York Harbor and Long Island Sound; and yet an enemy invading force by occupying the fine harbor at the mouth of our Delaware Bay could defeat the forces in the Delaware, could defeat the forces in Chesapeake Bay trying to join the fleet at New York, and if superior in power and efficiency to the fleet in New York Harbor and Long Island Sound, could defeat it, seeking to relieve a blockade of the cities upon the Delaware or those lying upon the Chesapeake when it would have no reasonable chance of success against the combined fleet.

To illustrate this by simple figures, let us suppose we had in the Delaware Bay and River 5 units of naval force—it does not matter what they may be called, dreadnaughts, torpedo boats, or cruisers.

In the Chesapeake Bay or inside the Capes of Virginia, say we had 10 of such units, and in New York Harbor and vicinity 15 of such units. By a sudden descent on our coast at Lewes a lodgment might be effected and a hostile naval force of 20 units find a satisfactory base for offensive operation. The ships in the Delaware would be so greatly overpowered in the proportion of 400 to 25 that no action could be attempted. The ships in the Chesapeake attempting to join the New York fleet could be met by the enemy, having an advantage of 400 to 100. The New York fleet of 15 units would be at impossible disadvantage in the proportion of 225 to 400 in any naval action, but if the ships—fighting units of our Navy—could be concentrated anywhere, and could together meet the enemy, our force would have an advantage in the proportion of 900 to 400, practically insuring the success of our operations. For the cost of one great battleship all our forces in the Delaware and Chesapeake Bays could be combined. For the cost of four great battleships all our naval forces from Narragansett Bay to the Virginia Capes could be combined, and if we assume such a naval action should occur at the place I have indicated our chances of success with four less battleships than the 30 over the force of the 20 battleships lying at the Capes of the Delaware would be represented by 676 to 400, and the money expended in enabling this concentration to be made would save in the commerce of this country each year about 10 per cent on the investment of the people and be as useful in peaceable times as it would in time of war.

The question I am putting to my colleagues in the Senate, the question I am putting to the departments of this Government, the question I put to you to-day is, Is not this the way to defend our country? By defense works of commercial usefulness in time of peace, works that will pay to the people of this country a dividend of not less than 10 per cent upon their cost each year and be monuments to the peaceful progress of our people as well as to their far-sightedness for military and naval efficiency, works that will last while our Government endures and not become obsolete and useless, comparatively speaking, in a decade or less.

The strategic value of sufficient canals anywhere is everywhere attested, and is now being absolutely proved by the European war. Certainly the value and usefulness of the Suez Canal to the allies and of the Kiel Canal to Germany is so well known to all of us that any statement about them here would be superfluous. The great strategic value to our country of the Panama Canal has been so often discussed and is so well understood as to be a matter of common knowledge.

But considering the situation as I have described it in that portion of the Atlantic seaboard from which I come, let me consume the short time that remains to me in describing what conditions are there. Only twice in our history has a foreign enemy invaded this country, and both times our State suffered invasion of its territory. The English armies invaded the northern section of our State in the time of the Revolution, and English ships attacked our Delaware seacoast in the War of 1812. It is more than probable that in case we should be drawn into war with any powerful nation of Europe right there we offer the most vulnerable point of attack.

History is said to repeat itself, and it does so just because human beings, human interests, the possibilities of human endeavor and exertion when considered in connection with the configuration of the earth's surface and the facts and forces of nature change so little in hundreds or thousands of years.

What I am advocating is changing just a little, a very little portion of the earth's surface, so that the forces of man and his activities may be greatly more effective in achieving most important results.

Those who come to a meeting of this Atlantic Deeper Waterways Association I fancy do so because of an interest they feel in the progress of the work which it favors. They have become convinced in one way or another that the improvements in waterways advocated by this association will be for the general benefit of the country, of those who live upon the Atlantic seaboard, or of those who dwell in particular communities along that seaboard.

Appropriations made by the General Government for the specific purposes advocated by this association can only be secured when the Senators and Members of Congress gathered together from all over the United States have been convinced that the appropriations made in the bill are justified in the general interest.

Let me suggest that there is no argument, no presentation of any case requiring an appropriation from Congress, which can be so forcibly presented that it will equal in its conclusive force an actual demonstration of the great value which an executed project has been to the people of the country in increasing its commerce, of lessening the rates of water and rail transportation, and of the utility of the completed work as an aid to the general defense of the country.

The actual results from a completed proposition produce conviction and preclude debate. You may talk to Senators and Members of Congress, you can attempt to show them why a result will necessarily follow the completion of a project, you may present arguments to them which are undeniable and incapable of refutation, but no argument you can present, no effort you may make, is equal to the cold facts and figures that can be produced after a project is completed, showing the exact results due to a completed work and its effect.

Go all over these United States, consider where it is possible at the smallest expense to demonstrate the value of deeper waterways, and I challenge you to find such a condition as that which exists at the upper end of the Delaware, Maryland, and Virginia Peninsula. The two greatest commerce-bearing estuaries on the Atlantic seaboard are separated by a narrow neck of land of less than 14 miles.

It is pierced now by an antiquated canal allowing the slow passage of boats drawing only 9 feet of water, of not more than 24 feet beam, and not more than 223 feet in length. This canal, completed in 1829, bears about the same relation to modern transportation as the old stagecoach of that time, jogging over rough roads, bears to the modern express train of our great railroad systems.

Less than 14 miles separate fifty millions of tons of commerce annually on the Chesapeake from fifty millions of tons annually on the Delaware. It prevents the passage in time of possible need of any efficient vessel of war—even tugs, torpedo boats, and submarines—from reenforcing vessels in the other.

A multitude of official reports have advocated that the Government shall remedy this great defect. Time and again it has been certified by the highest experts in our Government service that the action we advocate will save in times of peace to the ordinary commerce of the country something like 18 to 20 per cent on the cost of its acquisition and construction.

Is there anywhere else in this land of ours where such an opportunity exists to demonstrate and render certain the claims of this association of the great benefits of water transportation? And I ask you now whether you can better support the efforts you make, the claims you put forward, the principles which you advocate, than by beginning here a work of comparatively small magnitude, of comparatively trifling expense, by binding together for the benefit of our people these two great waters lastingly to benefit the people of this whole country hereafter as long as time endures? [Applause.]

O

64TH CONGRESS } 1st Session } SENATE { DOCUMENT No. 150

NATIONAL PROHIBITION

REPORTS

OF THE

SENATE COMMITTEE ON EDUCATION AND LABOR

IN THE

FORTY-NINTH, FIFTIETH, AND FIFTY-FIRST CONGRESSES, FAVORABLY RECOMMENDING THE PASSAGE OF RESOLUTIONS FOR THE SUBMISSION OF THE QUESTION OF NATIONAL CONSTITUTIONAL PROHIBITION TO THE SEVERAL STATES OF THE UNION

TOGETHER WITH

A LETTER FROM EX-SENATOR HENRY W. BLAIR, OF NEW HAMPSHIRE TO HON. MORRIS SHEPPARD, UNITED STATES SENATOR FROM TEXAS, RELATING THERETO

PRESENTED BY MR. CHILTON

JANUARY 24, 1916.—Ordered to be printed

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49TH CONGRESS, } SENATE. { REPORT
1st Session. } { No. 1563.

IN THE SENATE OF THE UNITED STATES.

JULY 26, 1886.—Ordered to be printed.

Mr. BLAIR, from the Committee on Education and Labor, submitted the following

REPORT.

[To accompany S. Res. 6.]

The Committee on Education and Labor, to whom was referred joint resolution of the Senate No. 6, "proposing an amendment to the Constitution in relation to alcoholic liquors and other poisonous beverages," have considered the same, and by a majority of their number report the joint resolution back favorably and recommend its passage and that the proposed amendment be submitted to the legislatures of the States for their action, with a view to the ratification thereof, as provided in the Constitution.

The committee does not deem it necessary to discuss the evils wrought by the use of alcohol in its various forms and degrees of purity and of adulteration as a beverage upon the life, health, industry, property, morals, character, and destiny of the American people and of the world.

Whatever remedy, whether by the enactment and enforcement of laws, by the forces of education, and motives addressed to the moral nature and will of the individual, or by a combination of all restricted agencies, the whole people, with very few exceptions, admit the existence of the curse itself and cry out, "Who and what shall deliver us from this body of death?" Your committee believe that public sentiment is ripe for the consideration and adoption of the best means, and of all the means, and the exertion of all the forces, both in the Nation and in the States, to effect the extirpation of the alcoholic evil.

Thus far the people have struggled to accomplish this end with no help from national law. On the contrary, the recognition and protection given to alcoholic drink as property, as a legitimate article of manufacture everywhere and for all uses, and of commerce, both interstate and international, by the Constitution and laws of the United States, have always constituted one of the chief obstacles to the success of that great movement known as the "temperance reform," and until there be a change in the fundamental law of the Nation, giving complete jurisdiction over the subject to assist and, if necessary to reverse the action of the States by the power of the whole body politic throughout the whole national domain, the efforts of the people through State and local agencies will always be greatly hindered and generally in the end will fail.

But, however that may be, the question considered by the committee is not one primarily touching the merits of the proposed amendment itself, but whether there is a sufficient public sentiment in favor of the submission of the amendment to the action of the people to require the passage of the joint resolution.

The majority of the committee believe that the minds of the most careful and conservative students of the liquor problem are rapidly coming to the conclusion that this national evil must and only can be removed by national legislation enforced by the national will in cooperation with the efforts of the State.

In nearly every voting precinct of this country there are American citizens who desire the proposed amendment to the National Constitution. They are determined upon political action. They will have it through existing political organizations or they will destroy one or both of the great parties of to-day and form one which will consent to take the sense of the people upon the question of amending the Constitution so as to give national jurisdiction over the traffic in strong drink. Why should they be denied the opportunity to be heard in the only forum which can pass upon the question? When any considerable and respectable portion of the American people desire to plead their cause in the great tribunal of sovereigns who, in a free country, decide every fundamental issue in the last resort, it is the duty of Congress to enact such preliminary legislation as is here proposed, so that under the forms of the Constitution they can be heard on the question of its own amendment. To deny this is of the very essence of despotism, and for Congress unreasonably to refuse the hearing is just cause of revolution. The people will demand a hearing for every large and respectable minority, and to grant this opportunity is the purpose of this resolution. Whatever may be the result, all must abide by it. But there can be no justification of a denial of the right to be heard.

Until that right is granted there will be, there can be, no peace to political partisans in this country. If there could be it would prove that the nature of government was already changed, and that under the forms of a progressive free republic we are become a hidebound despotism having a name to live but really already dead.

Your committee are unable at this late period of the session properly to present the great cause the promotion of which is the purpose of this resolution. Fortunately it is not necessary. We appeal to the universal sentiment which is the very basis of our political institutions, the right of every voting citizen to be heard at the polls upon every great question which concerns the public weal. Than this there can be none more important, and we earnestly hope the resolution may be adopted in the furtherance of the exercise of the primal rights of American sovereignty, which is that of each citizen to be heard by all, and of any considerable portion of the people to demand a verdict of the whole upon great issues which concern the general weal.

IN THE SENATE OF THE UNITED STATES.

JULY 9, 1888.—Ordered to be printed.

Mr. BLAIR, from the Committee on Education and Labor, submitted the following

REPORT.

[To accompany S. Res. 12.]

By direction of the Committee on Education and Labor, Mr. Blair submits the following report on Senate resolution 12, entitled "Joint resolution proposing an amendment of the Constitution of the United States in relation to the manufacture, importation, exportation, transportation, and sale of alcoholic liquors," recommending its submission to the States, to become valid as a part of the Constitution when ratified by the legislatures of three-fourths of the several States, as provided in the Constitution.

The joint resolution is in the following words:

JOINT RESOLUTION **Proposing an amendment of the Constitution of the United States in relation to the manufacture, importation, exportation, transportation, and sale of alcoholic liquors.**

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled (two-thirds of each House concurring therein), That the following amendment to the Constitution of the United States be, and hereby is, proposed to the States, to become valid when ratified by the legislatures of three-fourths of the several States, as provided in the Constitution:

"ARTICLE —.

"SECTION 1. The manufacture, importation, exportation, transportation, and sale of all alcoholic liquors as a beverage shall be, and hereby is, forever prohibited in the United States and in every place subject to their jurisdiction.

"SEC. 2. Congress shall enforce this article by all needful legislation."

In submitting this favorable report upon the aforesaid joint resolution it is proper to say that there are members of the committee who concur in the report recommending the submission of the proposed amendment to the States who do not, by such action, indicate their approval of the adoption of the amendment as a part of the Constitution nor that they would themselves advocate its ratification by the legislatures of the States; but in deference to the immense mass of petitions for this amendment of the organic law, coming from the people in all parts of the country, and believing that an opportunity should be given to them to be heard upon the merits of their cause in the forum of the States, where alone it can be heard and decided, the majority of the committee would deem a refusal to submit the proposed amendment to the States for consideration analogous to the denial of the right of a party to be heard in court upon a question of private right. The method provided in the Constitution for its own peaceful amendment would be destroyed by failure to submit the proposition for amendment in cases of grave moment involving the approval and prayers of multitudes of the people, for where the remedy sought is admitted to be without the jurisdiction of the fundamental law, the petition is really addressed to the only tribunal which can enlarge that jurisdiction, that is to say, to the States themselves. Should, then, Congress, in such case refuse to submit the proposal to the States, such refusal would constitute a substantial denial of the right of petition itself.

The changes in the National Constitution made indispensable by the development of the Nation can only be peacefully accomplished by a judicious and liberal exercise of the power of Congress to propose amendments to the States upon the petition of those who desire to be heard in the great court of the people exercising their sovereignty through the States as in the formation of the Constitution.

It is well known that, but for the belief in the conventions of the States that the opportunity to amend the Constitution would be most liberally afforded by Congress in accordance with the forms provided in that instrument, the original ratification never would have been obtained. Some of the States ratified only because it was firmly believed that, whatever might be the opinions of Congress upon the modifications desired by those who considered the instrument proposed for ratification as fatally defective without them, the suggested amendments would be submitted to the subsequent action of the States almost as a matter of course.

While the committee would by no means justify the submission of trifling or uncalled-for propositions for the consideration of the States, yet they firmly believe that the perpetuity and peace of the country under the forms of constitutional government demand that there be no captious or arbitrary denial of the right of petition for the amendment of the fundamental law through the forms of congressional submission to the tribunal of the people in the States.

The agitation for national legislation for the extirpation of the traffic in alcoholic poison made and sold to be used as a beverage will never cease to disturb and finally destroy great political parties until they submit the question of the enlargement of national constitutional jurisdiction so as to include control of the subject.

When this proposed amendment is submitted to the action of the States the subject will pass in its important features from the national arena to that of the several States until the fate of the proposed amendment is decided. When decided, if adversely to the ratification, the subject will be eliminated from national politics at least for many years.

If on the other hand the proposed amendment should be ratified and become a part of the national law, the chief curse of the world would be summoned to the block of national justice and die by the hand of the only power which can wield an ax big and sharp enough to cut off its hydra head.

Then we should have peace.

But the agitation for the destruction of the liquor traffic can not cease until the evils which it inflicts upon mankind are removed or the human race is destroyed.

It is useless to cry peace, peace, when there is no peace. It is time to face the subject. Evasion has become almost impossible, and the effort requires an activity which is too exhaustive for its long continuance.

Judging from the petitions which have been presented to Congress during the last few years, many of which are representative of great bodies and of communities whose individual signatures have not been obtained, it can hardly be doubted that at least ten millions of the American people are desirous of national legislation for the destruction of poisonous—that is to say, of alcoholic—drinks.

These people represent a power of thought and a moral force far greater than their mere numbers. Whoever expects to withstand the shock of their charge will yet regret that its irresistible power was not seasonably realized.

These petitions for the opportunity to amend the National Constitution must be heard and will be heard. Those who will oppose them in the States will yet demand that they shall be heard in the States upon the proposition of a prohibitory amendment of the National Constitution.

To deny this is to subvert the republican form of Government, and the honorable opponents of the measure will not always refuse to its friends that hearing in court which is the sacred right of every American, and especially in a matter of so great national concern. * * *

51st Congress, 1st Session. | SENATE. | Report No. 1584.

IN THE SENATE OF THE UNITED STATES.

August 13, 1890.—Ordered to be printed.

M . Blair, from the Committee on Education and Labor, submitted the following

REPORT.

[To accompany S. R. 2.]

Mr. Blair, from the Committee on Education and Labor, to whom was referred Senate resolution No. 2, being joint resolution proposing an amendment to the Constitution of the United States in relation to the manufacture, importation, exportation, transportation, and sale of alcoholic liquors, by direction of the committee, submits the following report recommending the passage of the resolution.

* * * * * * *

As the Constitution of the United States is almost universally construed, the National Government has no jurisdiction over the liquor traffic within the States. The National Government has, however, the exclusive power to regulate commerce, both internal and external, and with the Indian tribes; and it recognizes all articles as subjects of legitimate commerce which are the subjects of commerce between any of the States, or in the commercial world, subject sometimes to many, sometimes to few, sometimes to no restrictions whatever. Alcoholic beverages, in all their forms, are universally recognized subjects of commerce. Thus the National Government, regulating and protecting commerce between the States and foreign nations, becomes, in practical effect, the protector of the liquor traffic. Just what its powers may be when the Constitution shall be construed by a Supreme Court made up of men determined to find its uttermost powers to limit or even to destroy the traffic it is unnecessary now to inquire. No such judicial tribunal now exists and none should exist which will torture a desired doctrine from a recusant Constitution. A court which will extort good from the Constitution by a forced and unnatural construction will upon occasion find evil with at least equal facility. We well know that very few of our people and only the smallest proportion of the legal profession and of the judiciary, either of the States or of the Nation, up to this time, have believed that under the Constitution the National Government can interfere for the restriction and destruction of the liquor trade in the States. Equally difficult will it be to find any considerable number of students who have studied our Constitution and laws who believe that the power to prohibit the traffic in intoxicating liquors with foreign nations can unquestionably be exercised by the National Government under the Constitution in its present form.

* * * * * * *

National law, enacted under an amended Constitution, could prohibit importation, could prohibit transportation and sale, and in concurrence with like legislation by the States (the union of the power of the Nation and the power of the States), thus securing the entire strength of the whole community, could soon put an end to the traffic. Under such restrictions in a generation or two the consumption of alcohol as a beverage would practically disappear. Alcohol would still be manufactured, distributed, and sold under the restrictions appertaining to other poisons; and its use as a medicine and in the arts would not be interfered with. Its manufacture and distribution would be controlled by like regulations as those made with reference to dynamite, nitroglycerine, and gunpowder, and the whole family of poisons, and, in fact, all articles of great and dangerous potency, which, nevertheless, have their legitimate uses for the benefit of mankind.

Those who urge an amendment of the National Constitution to secure the removal of the evils of intoxication are not careful that the uttermost power which possibly may be concealed in the Constitution be put forth to this end before an attempted amendment. They hold that if there be any doubt, as there is doubt, of the true meaning of the Constitution, it should be removed at once by a bold and affirmative and unmistakable declaration against the liquor traffic embodied in the Constitution itself for the general welfare. It should be made aggressive and explicit.

We should seize this great evil by power analogous in its completeness and vigor to that of taxation and of making war. No foreign invader, nor all the military powers of the world combined could do the harm to the American people under which they are continually suffering from the trade in alcohol; and for the national preservation the Constitution should declare inflexible and perpetual war against it. The timorous, uncertain, and ineffectual efforts of States should not be relied upon. It is indispensable to the very existence of their police powers, which have been given for the preservation of good order, good health, and good morals in society, that the powers of society, as a whole, operating in and through the national functions, should reinforce, protect, and preserve the police powers of the State. The Nation is but the aggregate of the States, and the parts can not be expected to accomplish their own good with the aggregate operating against them, or even passively reposing upon them with its continental bulk.

Such is the line of argument, briefly stated, of those who believe that this joint resolution should be made a part of the Constitution.

Your committee, whether unanimous or otherwise, in the holding to this view are of the opinion that the resolution should be favorably reported, and should be submitted by Congress to the action of the States for another reason. It being a fact that a very large proportion of the American people are anxious that the National Constitution be amended in accordance with the resolution, we believe that they have a right to be heard in the forum of the State legislatures, where alone the question can be decided whether the National Constitution shall be amended. That Constitution points out definitely the manner in which a change in its provisions may be effected. The Constitution of the country must be amended from time to time to correspond with the evolution of the Nation itself, for it is impossible to fetter the growth of the Nation in any direction. It will grow, peacefully or otherwise. The Constitution must yield here and there, corresponding to the necessities of the times and of the people, and the necessary changes be peacefully made, in accordance with the methods of amendment pointed out in the Constitution itself, or revolution and bloodshed will perform their work. The Constitution and the spirit of the age must be one. Whenever any considerable and respectable portion of the American people (and no considerable number can fail to be respectable) desire changes in the fundamental law and ask respectful consideration of their propositions by the Nation at large, we hold it to be the duty of the Congress to give them a status in the court provided by the Constitution for its own amendment.

They have a right that their contention be placed in proper form before the local legislatures and the people before they have demonstrated that they are able to secure its ratification by three-fourths of the States. That ratification, if it comes at all, will come as a result of agitation and discussion of the very proposition which they ask to have submitted. The true question for Congress to consider is not whether three-fourths of the States will ratify, after discussion and agitation, but whether the subject concerns the public welfare, and whether those who desire the submission of the resolution be of sufficient number to relieve the proceeding from the charge of triviality and inconsequence. Deciding upon grounds like these, your committee are impressed by the overwhelming importance of the subject to the Nation and to the world, and by the vast number, not to say the majority of the moral and intellectual forces of the country, which demand the submission of this joint resolution to the consideration of the States.

We, therefore, report it favorably, and recommend its passage.

COPY OF A LETTER FROM EX-SENATOR HENRY W. BLAIR, OF NEW HAMPSHIRE, TO SENATOR MORRIS SHEPPARD, OF TEXAS, RELATIVE TO CERTAIN REPORTS IN REGARD TO NATIONAL PROHIBITION.

COLORADO BUILDING,
Washington, D. C., November 16, 1914.

Hon. MORRIS SHEPPARD,
United States Senate, Washington, D. C.

MY DEAR SIR: Your letter of recent date, referring to resolution for national prohibition, introduced by me in the Forty-fourth Congress, and in each Congress following while I was in public life, and specially inquiring as to the position of Senator George, of Mississippi, upon the question of the submission by Congress of a joint resolution to the legislatures of the States with a view to the ratification or otherwise of said resolution as a part of the Constitution of the United States, was duly received. Said resolution is found in Senate Report No. 1584, of the Fifty-first Congress, first session, where it was unanimously and favorably reported by the Committee on Education and Labor, of which I was chairman. Senator George, of Mississippi, had long been a leading member of said committee, taking great interest in all measures coming before it, including the one in question. I did not understand that he was committed to the ratification of the amendment as a part of the Constitution, but he was, with the rest of the committee, of the opinion that it should be submitted to the legislatures of the States for action for the reasons set forth in the report, an extract of which is herewith incorporated.

You will observe that the report, which is dated August 13, 1890, sets forth the views of those who favored the ratification of the resolution, closing the brief review of arguments in support of their views with these words at the end of the fourth page: "Such is the line of argument, briefly stated, of those who believe that this joint resolution should be made a part of the Constitution." It then proceeds to state the reasons for the "unanimous" recommendation that the resolution be favorably reported and submitted by Congreess to the action of the States through their legislatures:

"Your committee, whether unanimous or otherwise, in the holding to this view, are of the opinion that the resolution should be favorably reported and should be submitted by Congress to the action of the States for another reason; it being a fact that a very large proportion of the American people are anxious that the National Constitution be amended in accordance with the resolution, we believe that they have a right to be heard in the forum of the State legislatures, where alone the question can be decided whether the National Constitution shall be amended. That Constitution points out definitely the manner in which a change in its provisions may be effected. The Constitution of the country must be amended from time to time to correspond with the evolution of the Nation itself, for it is impossible to fetter the growth of the Nation in any direction. It will grow, peacefully or otherwise. The Constitution must yield here and there, corresponding to the necessities of the times and of the people, and the necessary changes be peacefully made, in accordance with the methods of amendment pointed out in the Constitution itself, or revolution and bloodshed will perform their work. The Constitution and the spirit of the age must be one. Whenever any considerable and respectable portion of the American people (and no considerable number can fail to be respectable) desire changes in the fundamental law, and ask respectful consideration of their propositions by the Nation at large, we hold it to be the duty of the Congress to give them a status in the court provided by the Constitution for its own amendment.

"They have a right that their contention be placed in proper form before the local legislatures and the people before they have demonstrated that they are able to secure its ratification by three-fourths of the States. That ratification, if it comes at all, will come as a result of agitation and discussion of the very proposition which they ask to have submitted. The true question for Congress to consider is not whether three-fourths of the States will ratify, after discussion and agitation, but whether the subject concerns the public welfare, and whether those who desire the submission of the resolution be of sufficient number to relieve the proceeding from the charge of triviality and inconsequence. Deciding upon grounds like these, your committee are impressed by the overwhelming importance of the subject to the Nation and to the world, and by the vast number, not to say the majority, of the moral and intellectual forces of the country, which demand the submission of this joint resolution to the consideration of the States. We therefore report it favorably and recommend its passage."

There was a majority report in favor of the resolution, Senate Report 15631, first session Forty-ninth Congress, and a unanimous report in favor of submission to the legislatures of the States for action upon the question of ratification, Senate Report 1727, first session Fiftieth Congress, but in the latter there is an ambiguity which is entirely removed in the report of the committee in the Fifty-first Congress, which is cited above.

The committee was unanimous in recommending the submission of the joint resolution to the legislatures of the States for action upon the question of ratification as a part of the Constitution.

The Committee on Education and Labor in the Fiftieth Congress consisted of Blair (chairman), Bowen, Palmer, Wilson, George, Call, Pugh, Payne, Sawyer (excused), and Riddleberger, appointed February 16, 1888.

Fifty-first Congress, first session: Blair, Wilson of Iowa, Stanford, Stewart, Washburn, George, Pugh, Payne, and Barbour.

You inquired specially for the position of Senator George, of Mississippi, and I have substantially answered above. He was a member of the committee (Education and Labor) for about 10 years, and we were closely associated as friends and in the work of the committee. He favored the submission of the resolution to the legislatures of the States, as, in fact, did the whole committee in the last report ever made on the subject. It was at no time debated in the Senate. I moved for its consideration the day before the close of a session, but the pressure of business and the fact that extended debate was unavoidable defeated the effort. The members of the committee did not consider that by recommending submission to the legislatures they were pledging themselves to favor ratification by the legislatures of the States. I think both Senators George and Pugh had no superiors as lawyers or statesmen in the Senate at that time.

Truly, yours,

HENRY W. BLAIR.

O

64TH CONGRESS
1st Session

SENATE

DOCUMENT
No. 251

THE ATLANTIC FLEET IN 1915

LETTER FROM
THE SECRETARY OF THE NAVY

TRANSMITTING

IN RESPONSE TO A SENATE RESOLUTION OF JANUARY 8, 1916
THE ANNUAL REPORT OF THE COMMANDER IN CHIEF OF THE
ATLANTIC FLEET FOR THE YEAR ENDING JUNE 30, 1915
TOGETHER WITH A SUPPLEMENTAL REPORT OF
FLEET OPERATIONS TO OCTOBER 15, 1915

ALSO

A LETTER FROM THE SECRETARY TO THE CHAIRMAN OF
THE SENATE COMMITTEE ON NAVAL AFFAIRS TRANSMITTING
CERTAIN STATEMENTS RELATIVE TO THE ACTION
TAKEN BY THE NAVY DEPARTMENT TO ADVANCE THE
EFFICIENCY OF THE ATLANTIC FLEET

PRESENTED BY MR. CHILTON

JANUARY 25, 1916.—Ordered to be printed

WASHINGTON
1916

UNITED STATES OF AMERICA
GOVERNMENT PRINTING OFFICE

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REPORT OF THE COMMANDER IN CHIEF OF THE ATLANTIC FLEET.

LETTER

FROM

THE SECRETARY OF THE NAVY,

TRANSMITTING,

IN RESPONSE TO A SENATE RESOLUTION OF JANUARY 8, 1916, THE ANNUAL REPORT OF THE COMMANDER IN CHIEF OF THE ATLANTIC FLEET COVERING THE YEAR ENDING JUNE 30, 1915, TOGETHER WITH A SUPPLEMENTARY REPORT ON FLEET OPERATIONS TO OCTOBER 15, 1915.

January 14, 1916.—Referred to the Committee on Naval Affairs and ordered printed in confidence for the use of the Senate.

January 19, 1916.—Injunction of secrecy removed.

The Secretary of the Navy,
Washington, January 11, 1916.

My Dear Mr. Vice President: I am sending you herewith the annual report of the commander in chief of the Atlantic Fleet, dated August 15, 1915, in response to Senate resolution No. 60, directing this action.

The annual report of the commander in chief covers the year ending June 30 last, and since its receipt a supplementary report on fleet operations to October 15, 1915, has been received and is also forwarded herewith.

You will observe in several instances the insertion of stars to denote omissions. I have omitted several references of a strictly military nature.

Very truly, yours,

Josephus Daniels.

Hon. Thomas R. Marshall,
Vice President of the United States,
Washington, D. C.

COMMANDER IN CHIEF'S ANNUAL REPORT, FISCAL YEAR 1915.

Part I. Operations of the Fleet.
Part II. Condition of the Fleet.
Part III. Requirements of the Fleet.

UNITED STATES ATLANTIC FLEET,
U. S. S. "WYOMING," FLAGSHIP,
Newport, R. I., August 15, 1915.

From: Commander in chief.
To: Secretary of the Navy.
Subject: Annual report for period September 17, 1914, to June 30, 1915.
Reference: (a) Naval Instructions, article 916 (4).
Addenda: (a) Fleet gunnery officer's report.
(b) Fleet engineer officer's report.
(c) Fleet radio officer's report.
Addenda: (d) Fleet signal officer's report.
(e) Fleet tactical officer's report.
(f) Fleet athletic officer's report.
(g) Fleet naval constructor's report.
(h) Fleet medical officer's report.
(i) Fleet paymaster's report.
(j) Data called for by Naval Instructions, 916 (4).

1. I have the honor to submit herewith a report covering the period September 17, 1914, to June 30, 1915. In order to limit the report to moderate length it has been found necessary to omit discussions of the many satisfactory features of the fleet and to invite attention more particularly to its operations, condition, and requirements.

PART I. OPERATIONS OF THE FLEET.

ORGANIZATION.

2. With the approval of the Navy Department, several changes have been made in the organization of the Atlantic Fleet to effect a better coordination of the work of the administrative units. At present the fleet is organized as follows:

Wyoming (flagship of commander in chief).
Battleship squadrons (Vice Admiral H. T. Mayo).
Cruiser squadron (Rear Admiral W. B. Caperton).
Destroyer squadron (Capt. W. S. Sims).
Submarine flotilla (Capt. A. W. Grant).
Mining and mine-sweeping division (Commander R. R. Belknap).
Auxiliary division (Commander U. T. Holmes).

This organization of the fleet into six administrative units relieves the commander in chief from the burden of many details and enables him to devote more time to the larger subjects of strategy, tactics, and operations of the fleet.

The battleship squadrons consist of two active squadrons, at present operating together under the command of the vice admiral. By keeping all ships of a type under one organization there results a more uniform training, a keener competitive spirit, better administration; in short, a more systematic development.

The cruiser squadron comprises all the cruisers and gunboats in the fleet not attached to other organizations. As this squadron expands it will be necessary to separate it into two or more squadrons. At present one squadron commander can efficiently direct the work of the vessels in this organization.

The destroyers of the fleet are organized into divisions of five destroyers each, and the divisions are formed into flotillas of four divisions each. The flotillas are organized under one administrative command as a squadron in accordance with the general principles of organization of other units of the fleet. Additional flotillas will be organized as new destroyers are commissioned until the destroyer squadron is composed of four flotillas, which will complete a unit of a well rounded out fleet as required by the program of the general board, which calls for four active destroyers with each battleship. The number of destroyers that can be effectively administered as a flotilla, with 1 tender, is limited to about 16 to 20. When the *Melville*, being completed, is commissioned and added to the fleet she will be available as a tender for a third flotilla now in process of formation.

The submarine flotilla consists of four divisions of submarines, one of which is permanently stationed at Colon. As this organization grows with the addition of several divisions of new submarines it will be necessary, as in the case of the destroyer flotilla, to organize the whole force into a squadron or two or more flotillas.

The mining and mine-sweeping division consists of two mine layers and four seagoing tugs. Vessels assigned to the fleet and especially fitted and intended primarily either for mining or sweeping will be placed in this division. Mining has become an important branch of naval warfare, and every effort should be made to further develop this division.

The auxiliary division comprises all fuel ships, supply ships, repair ships, ammunition ships, hospital ships, etc., not attached directly to any other unit of the fleet.

BATTLESHIP SQUADRONS.

3. Upon the completion of the fall target practice the vessels of the fleet were sent to the navy yards to prepare for the cruise to San Francisco in March. This cruise was subsequently abandoned. The battleships and destroyers sailed for Cuba on January 17 and carried out two important strategical problems en route. In the first problem a superior battleship force leaving New York attempted to prevent the joining of inferior forces leaving Boston and Norfolk. Owing to the lack of any cruisers or scouting vessels attached to the fleet, it was necessary to assign a number of destroyers to each force to act as scouts. In the moderate seas encountered the destroyers proved ineffective for scouting work. Due to its inability to obtain information of the movements of the opposing forces, the superior force failed in its mission, and the inferior forces joined without difficulty.

The combined forces then assembled off the Virginia capes and began problem No. 2. In this problem a destroyer force off Charleston was assigned the task of intercepting and attacking a battleship force proceeding to the West Indies. The destroyers succeeded in locating the battleships and delivered an attack before reaching the West Indies.

Both of the problems played en route to Cuba developed a number of points of professional value, which were brought out by conferences of the officers of the fleet and reported to the department in detail.

4. While in Cuba, in addition to the usual drills and target practices carried out by individual ships, the battleship squadrons and the destroyer squadron engaged in a number of combined maneuvers. Many of these maneuvers were carried out at night and were designed for the primary purpose of developing the offensive power of destroyers under various conditions and the proper methods of defense of battleships against destroyer attacks. The maneuvers proved instructive and resulted in valuable experience to the personnel. Separate reports of the maneuvers have been forwarded to the department.

The battleships completed all the torpedo practices and torpedo defense called for by the winter schedule of target practice.

Advantage was taken of the excellent rifle ranges at Guantanamo to afford the personnel of the whole fleet ample practice at small-arm firing.

Baseball, boat races, swimming, and all forms of athletic contests were carried out in accordance with program.

The facilities afforded in the vicinity of our winter base at Guantanamo for drilling, training, and exercise is a great asset in the maintenance of efficiency of the fleet.

5. *Tactics of the battle line.*—A considerable part of the winter maneuvers was given up to developing tactics of the battle line, with satisfactory results. Eighteen battleships was the greatest number that could be gotten together in one formation at any time for these exercises. These maneuvers were accomplished without difficulty, with a minimum of signals and with little decrease in the accuracy of gunfire, and the enemy at all times kept under the full fire of the battle line. The principles involved in these tactics of the battle line have been demonstrated to be sound and of easy application.

6. *Spring gun and torpedo practices.*—Upon completion of the winter maneuvers the fleet assembled off the Virginia capes in April and engaged in the various forms of gun practice and torpedo practice.

7. *Review in New York, May 8–18.*—Immediately on the completion of target practices the fleet was assembled in New York for a review by the President. The fleet was cordially welcomed and entertained by the city of New York and great interest manifested in the different types of ships. The fleet was reviewed at anchor May 17 by the President and again on May 18, as the fleet steamed out to sea.

8. *Department's strategical problem No. 1, May 18–25.*—On leaving New York May 18 the fleet proceeded to sea to carry out strategical problem No. 1, as directed by the department. During this problem all vessels of the fleet were operating night and day until its completion on May 25. This problem proved the most instructive to officers and men of any in which the fleet has been engaged. In the operations of this problem many satisfactory fea-

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are relieved frequently, but their absence from the fleet sets them back in their development.

SUBMARINE FLOTILLA.

12. While the battleships and destroyers were operating in Cuban waters, the submarines, mine layers, aircraft, and reserve destroyers engaged in a series of combined exercises off Pensacola.

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The submarines left Pensacola in time to arrive in the North River for the naval review on May 8, after which they proceeded to sea with the fleet on May 18 to engage in department's strategical problem No. 1. Their duties required them to operate some distance at sea until they were directed to seek shelter on account of storm warnings, after which they operated along the New England coast, successfully utilizing the Cape Cod Canal to expedite their movements.

ANNUAL PROGRAM.

13. The present plan of operations of the fleet, which has been in effect for several years past, to have our winter drills and maneuvers in the vicinity of Guantanamo and southern ports during the winter, and to have drills and exercises based on Narragansett Bay in the summer, has proved very satisfactory for the training of the fleet. As the fleet becomes further developed in the building up of its units, it will be necessary to have more combined exercises of the different squadrons by playing war games and strategical and tactical problems.

PART II. CONDITION OF THE FLEET.

PERSONNEL.

1. *Shortage of officers.*—The most vital weakness in the Atlantic Fleet is the shortage of officers. It takes approximately 10 years to educate and train an officer, and no amount of legislation can provide officers when trouble is imminent. Expansion of the Navy is limited by the number of officers available. The fleet is handicapped not alone by the shortage of officers, but by the inexperience of the large number of young officers that have been added to the Navy in the last few years. This condition, coupled with the shortage of officers, has resulted in officers being ordered to duties beyond their capacities and for which their experience and judgment do not fit them.

In January, 1915, I reported that every battleship of the Atlantic Fleet should have the number of officers increased approximately 40 per cent to enable the vessels to attain their greatest efficiency. This shortage of officers still continues and exists in the other divisions of the fleet, though more pronounced in the battleship squadrons. Owing to short enlistments our men require continuous training and any shortage of officers is certain to result in a lessening of efficiency.

I respectfully invite the attention of the department to a comparison between the number of officers in our battleships and the number in the two leading navies of the world. I have selected for this comparison the *Delaware*, of our Navy, the *Bellerophon*, of the

British Navy, and the *Helgoland*, of the Germany Navy. Tl *ware* was selected by the General Board as the standard v comparing our material strength with that of other navies have taken the same vessel in making a comparison of p strengths. The *Delaware*, *Bellerophon*, and *Helgoland* are al ships of approximately the same speed and displacement.

Comparison of complements of officers.

Rank of officers.	Dela- ware.[1]	Bel roph
Captain	1	
Commanders	2	
Lieutenant commanders	2	
Lieutenants	2	
Lieutenants (junior grade)	3	
Ensigns and midshipmen	11	
Marine officers	2	
Surgeons	2	
Paymasters	1	
Chaplains	0	
Boatswains (estimated)	1	
Gunners (estimated)	2	
Carpenters (estimated)	1	
Machinists (estimated)	3	
Clerks (estimated)	1	
Total number of officers	33	

[1] Officers on board June 1, 1915.

A personnel board appointed on the *Delaware* in 1914 sta the complement of officers necessary was 54. A similar boar ing independently on the sister ship, *North Dakota*, report their complement should be 53.

The foregoing data were taken from official publications are in no sense war complements, but those that obtained lieutenant there are in the *Delaware*, 9; *Bellerophan*, 19; *He* is not known, but as the Germans have proportionately mo rant officers than any other navy, the number assumed is tl as the number in the *Bellerophon*.

It will be seen that in line officers of or above the grade o lieutenant there are in the *Delaware*, 9; *Bellerophon*, 19; *He* 29. In other words, in officers of experience the *Delaware* h half as many as the *Bellerophon* and one-third as many as t *goland*. In the total number of officers the complements the *Bellerophon* and the *Helgoland* exceed that of the *Dela* more than 60 per cent.

The shortage of officers is not confined to battleships, bu in all types of ships. For instance, assigned to the importa of guarding the approaches to the Panama Canal there is a of five submarines, in each of which there is but one officer, four of these five submarines the officer is of the rank of ens recently graduated from Annapolis.

In the recently completed battle efficiency inspection of th division of battleships, the division commander makes the fo comments:

> At general quarters in the U. S. S. *Utah*, a chief petty officer is in one turret and an ensign graduated in 1914 is in charge of another. T no officers for handling rooms and no officers available for the after ran The torpedo room is in charge of a chief petty officer and the torep

> stationed in the conning tower, is of the class of 1914. In the plotting room a pay clerk and a yoeman are performing work which requires commissioned officers of the line.
>
> The following shortages exist: *Florida*, 29 officers; *Utah*, 28 officers; *Michigan*, 21 officers; *South Carolina*, 16 officers.

Reports and comments similar to the foregoing come with great frequency before the commander in chief and could be quoted in great number. The shortage of officers necessitates a great deal of transferring of officers to other duties, both within the ship and to other stations, with a consequent loss in the efficiency of the ship. The commanding officer of one of the battleships in a recent official report states:

> In the 18 months that I have commanded this ship she has had 3 executive officers, 2 senior engineer officers and 3 assistants, 2 navigators and 2 acting, 4 first lieutenants, 7 gunnery officers (not counting 2 ordered who never reported), and 12 turret officers, or an average of a new turret officer in each turret every six months.

I desire to reiterate that the shortage of officers is the greatest weakness in the Atlantic Fleet and a matter meriting the serious consideration of the department.

2. *Shortage of enlisted men.*—Second in importance to the shortage of officers is the shortage of men. The shortage of men is put as of secondary importance to that of officers, since there will always be a reserve of trained men, and untrained men can be made efficient in much less time than is required for developing officers. The shortage of men in the Atlantic Fleet, coupled with the shortage of officers, has prevented the fleet from attaining the degree of efficiency that is to be expected. Too much emphasis can not be placed on what I believe to be the most serious weakness in the fleet to-day—lack of trained officers and shortage of enlisted men. To equalize the shortages in the different vessels there results a constant exchange of officers and men, tending to promote instability and to weaken the efficiency of the various units of the fleet. With few exceptions every vessel in the Atlantic Fleet is short of the complement of officers and men necessary for battle. The shortage of enlisted men in the battleships alone, as I reported in January, 1915, exceeds 5,000 men.

This shortage of men has been revealed in every operation of the fleet and has been reported on in inspections throughout the year. Conditions have not improved, and at the close of the fiscal year the shortage of men was greater than at any other time of the year. In one division of four battleships the division commander, in his June inspections, reported a shortage of 1,350 men, or an average shortage of more than 300 men in each ship.

The shortage of enlisted men, like that of officers, exists in all types of ships in the fleet. A captain of one of the mine-laying cruisers reports "the existing shortage in the vessel's complement now amounts to 25 per cent of the whole and 30 per cent in the seaman branch, resulting in a serious handicap to the ship's work."

During the year the department reduced the allowed complement of destroyers approximately 25 per cent, and these important vessels are now operating with reduced complements.

It is evident that undermanned and underofficered ships can not be kept in a state of preparedness and efficiency to meet on equal terms similar types in other navies.

MATERIAL.

3. *Battleship squadrons.*—In general the material condition of the battleship squadrons is very good, both in hull and in machinery. The greatest material weakness of the battleships has been that of the shafting of the *Connecticut* class of vessels. Experience has shown that, with the possible exception of the *Kansas*, the six battleships of the *Connecticut* class are unreliable at fleet speeds between 12 and 15 knots. The experiments to be conducted with the *Minnesota* may prove of value in permitting steps to be taken to overcome the excessive vibration at the speeds mentioned that has caused the breaking of so many shafts in this class of battleships.

4. *Cruiser squadron.*—The machinery conditions of the cruiser squadron can not be said to be satisfactory. Owing to the small number of vessels in the cruiser squadron and the number of stations to which they have been assigned, it has been impracticable to have these ships regularly overhauled or to have them conduct target practices and exercises with the fleet. During the past year only two of the small vessels of this squadron completed their target practice. An increase in the number of ships will improve conditions and permit a more efficient development of this squadron.

5. *Destroyer squadron.*—The destroyer squadron is in good material condition, both as regards hull and machinery, with the exception of the following-named destroyers:

Warrington. Machinery defective in design.

Henley. Machinery defective in design, with some defective material.

Aylwin. Excessive vibration at speeds above 15 knots, and defective alignment of shafting.

Downes (not finally accepted by the Government). Excessive fuel consumption compared to other destroyers.

Mayrant and *Duncan.* Out of commission, due to defective machinery design.

With the foregoing exceptions, the other vessels in the destroyer squadron have been maintained in good condition, largely through the assistance rendered by tenders and repair ships.

6. *Submarine flotilla.*—The condition of the submarine flotilla has been very unsatisfactory, particularly the condition of the machinery of these vessels. So much time has been required to keep the machinery in condition that little time has been available for training officers and crews to operate their ships. The submarine flotilla, even more than the other types of vessels in the fleet, has been hampered by lack of officers of experience. While there are 12 submarines in full commission assigned to operate with the fleet, only 6 of these vessels were in condition to proceed to Pensacola for the winter's work. All 12 were assembled in May in New York, but only 10 were available for the war problem May 18–25. Of these 10 a number were soon incapacitated by machinery troubles, and at times not more than 5 submarines were ready for duty. Due to untrained crews, some of the 5 were not ready to undertake submerged work. In the coming year an effort will be made to overcome the difficulties previously encountered, and the schedule of employment will assign the greater part of the year to individual work. The flotilla has the double task of making the various units

effective and at the same time developing and training crews for the new submarines nearing completion.

6a. *Steaming trials.*—I renew my recommendation previously made that in competitive steaming trials ships be not permitted to run above their designed speeds. In the effort to attain a slight increase in speed there is danger that the machinery will be worked beyond its designed capacity, and damage will result. In time of war, when the situation demands it, all possible speed should be attained, but in competitive steaming trials the designed standard should not be exceeded.

7. *Communications.*—I am pleased to report considerable progress in the important element of communications, particularly in radio signaling. In playing the department's strategical problem No. 1 the radio service was mobilized, and all messages were sent in code. Several hundred messages were handled among ships of the fleet and between ships and shore stations with remarkably few errors.

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Visual signaling has been held back in its development by lack of officers to assign to signal duty. The standard of signalmen has been raised by the department's policy of sending from the training stations men who have been specially picked and trained for signaling.

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PART III. REQUIREMENTS OF THE FLEET.

1. *Complements of ships.*—I believe that all ships in full commission attached to the active fleet should be kept fully manned for battle, ready for any duty to which they may be called. In no other way can the units of the fleet be kept in a thoroughly efficient state. I am of the opinion that such ships as are maintained in the active fleet should be kept in efficient battle condition at all times. A reduction of complements in order to permit additional vessels to be commissioned I consider unwise from every point of view. Vessels in commission should either be on a reserve basis or on a full battle complement. There is no efficient compromise between these two standards.

There are at present attached to the fleet 11 destroyers with one-half complements, a makeshift brought about by the shortage of personnel. As a result of this shortage the training of these destroyers is not complete, and the limiting conditions brought about by the restricted activities of one-half complements lead to false conclusions and requirements.

I therefore recommend that all active ships assigned to the Atlantic Fleet be kept fully manned at all times, and that additional officers and men, when they become available, be assigned to fill the shortages now existing in the fleet.

2. *Composition of the fleet.*—The operations and maneuvers carried out during the year have emphasized the lack in the fleet of certain important types of vessels. These exercises have demonstrated the wisdom and soundness of the principles governing the recommendations of the general board as to the number and types of the various vessels required to constitute a well-rounded fleet. In fleet problem No. 1, played in January while en route to Guantanamo, two inferior

forces were enabled to evade a superior dreadnaught force as the latter failed, through absence of cruisers, to locate either inferior force. A few days later, in problem No. 2, our main body was located and tracked by destroyers, owing to our lack of scouting vessels and cruisers. Our fleet lacked the fast cruisers that are necessary to give information of the position of the enemy as well as to deny the enemy information of our position and to screen our own forces.

In department's strategical problem No. 1, played May 18–25, the lack of heavily armored fast vessels and light cruisers was especially felt. For seven days, from the start of the problem until it ended, the Blue commander in chief has no reliable information of the position or movements of the enemy, while the enemy, due to superior cruiser force, was well informed of our movements and dispositions at all times. The destroyers demonstrated their ability in operations of this character. It is believed that had we possessed an efficient force of fast seagoing submarines in this problem they could have been utilized to great advantage.

3. *Destroyers as scouts.*—The winter's work made it evident that destroyers are quite unsuited for scouting except under very favorable circumstances. Their radio communication is reliable for short distances only. Their reliance for safety is based entirely on their speed and in moderately rough seas their speed is so much reduced as to render them a prey to fast enemy cruisers. Aside from the reduction of the speed there is a loss in efficiency of destroyer personnel subjected for several days to rough weather. Destroyers in no sense can be relied upon to take up the duties of fast cruisers, but their value to the fleet in other ways is very great.

4. *Mining and mine sweeping.*—With the approval of the department there has been organized a mining and mine-sweeping division. At the present time there are no vessels in the Atlantic Fleet for mine sweeping of a type that has proved successful abroad. The four tugs fitted with sweeping gear are of too deep draft to make them efficient mine sweepers, and of too costly a type to utilize in such work. Destroyers can be used in emergency, but they are much too costly and not suitable vessels for handling heavy sweeps, and the light sweeps provided for them are not effective in dislodging heavy mines.

Light-draft trawlers or tugs seem to be the most effective types of sweeping vessels and should be added to the fleet for this purpose.

As practically the entire Atlantic seaboard is capable of being mined it would be necessary in war to precede the movements of the fleet, while on soundings, with sweeping vessels and it is important that mine-sweeping methods and equipment be developed at an early date and that available trawlers be organized into a reserve for use in war.

5. *Lack of air craft.*—To assist in locating the enemy during the war problem May 18–25, weather conditions were such that air craft would have been of considerable assistance. I consider it important that this branch be developed and as soon as practicable air craft be assigned to operate with the fleet, when engaged in combined maneuvers, to assist in controlling gun fire, locating mine fields or submarines, and in operations of a special nature.

6. *Department's strategical problem No. 1.*—This problem, played May 18–25, proved of value to all concerned. Separate report has

already been submitted to the department covering the various operations. The principal deficiencies noted in our fleet were as follows:

(*a*) Shortage of personnel, both in officers and men.

(*b*) Lack of fast armored ships and fast light cruisers, both for scouting and screening.

(*c*) Lack of air craft.

(*d*) Lack of mining and sweeping units.

(*e*) Lack of speed in our present cruisers.

(*f*) The limitations of mobility and seagoing qualities of most of the present submarines.

(*g*) Lack of radio direction finder.

7. *Mobilizing ships in reserve.*—As soon as the present shortage of officers and men is relieved, the ships in reserve should be mobilized annually with full complements with the active fleet.

As a number of the ships now in reserve would undoubtedly be added to the active fleet in the event of hostilities, it is necessary that the weaknesses of the reserve ships be developed by permitting as many as practicable to cruise with the active fleet for a few weeks annually.

Experience demonstrates that the methods of training, communication, and handling the fleet, change so rapidly that it is necessary for all officers and men to maintain touch with the active fleet, and the material of ships in reserve is best tested out by active cruising.

8. *Target practice.*—The experience of the present war has shown the necessity for developing long-range firing.

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I desire to point out the present unsatisfactory methods of determining the qualifications of pointers—that is, by scores at elementary practice. An analysis of the elementary practice of the *Michigan*, *Kansas*, and *Louisiana* shows that the fire-control error is in general approximately twice as great as the error of the pointer. Under present methods the fire-control error may counteract the pointers' error and a badly aimed shot make a hit. As but three turret shots are fired by a pointer for qaulification, it is evident that fire-control errors may counteract bad pointing and a good score result, while in other cases the score of a good pointer may be ruined by fire-control errors. The score alone is insufficient for grading pointers. While I recognize, from other considerations, the value of elementary practice, I believe that for grading pointers a method combining check telescope and subcaliber drills with a physical examination for vision and nervous temperament, and a consideration of the general character and ability of the man, would prove superior to the present system. Further data will be collected in the next elementary practice with a view of developing a fair method of grading pointers and of ascertaining and eliminating all avoidable sources of error in gunfire.

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It is unfortunate that the hazy weather prevailing on the southern drill grounds during April did not permit the completion of the different forms of experimental practice.

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Due to the small number of vessels in the cruiser squadron and the important duties performed by these vessels, most of the vessels in that squadron did not complete their target practices during the year. This failure is regretted, as the efficiency of a ship can not long be maintained without testing and practicing with the weapons supplied.

There are a number of armed vessels in the submarine flotilla that should be required to hold target practice, in order to keep these vessels in readiness for war.

It is recommended that, if practicable, provision be made for divided fire and concentrated fire during the year's practice in order that ships will be trained for conditions that will likely exist in battle.

It is conclusively shown that the number of hits at target practice does not depend upon the gun pointers or guns' crews alone, but it is the combination of gun control, fire control and ship control. The present method of awarding prize money to the gun pointers and guns' crews alone is manifestly incorrect. I have the honor to renew my previous recommendations on this subject, that all prize money for excellence at target practice be awarded to the ships making the highest scores.

I consider it important that the department investigate the possibilities of providing grape shot or a similar form of ammunition for use of turret guns in repelling destroyer attacks.

Attention in invited to the recommendations of the fleet gunnery officer in regard to the various forms of target practices, which recommendations meet with my approval.

9. *Entanglements and nets.*—The development of entanglements in the form of nets, booms, and other obstructions as a protection against submarine and destroyer attack, and floating mines, should receive active consideration by the bureaus concerned. Material of this kind should be developed and issued to the Mining and Mine Sweeping Division to be employed in fleet exercises.

10. *Anti air-craft guns.*—There are no anti air-craft guns supplied the vessels of the fleet. I consider it important that a limited number of such guns be supplied as early as practicable, and that a special form of target practice against kites and captive balloons be engaged in annually to develop the guns' crews and the weaknesses in the material supplied.

11. *Need of division commanders.*—It is desirable in order to permit a more rapid development of the mining and mine-sweeping division and the auxiliary division, to provide commanders for these divisions.

At present the senior captain of the auxiliary division (in the *Vestal*) is responsible for the technical work in connection with the repairs and maintenance of the fleet in addition to his duties as captain of the ship and to the administrative work in his division. A similar condition exists in the mining and mine-sweeping division.

Division commanders, with appropriate assistants, should be assigned to command each division in order to allow for a proper development of these important units of the fleet.

12. *Additional naval constructors.*—I approve the recommendation of the fleet naval constructor contained in the appended report, recommending that a naval constructor be assigned to each of the following units of the Atlantic Fleet: Battleship squadrons, cruiser squadron, destroyer squadron, submarine flotilla.

OVERHAUL PERIODS.

13. *Battleship squadrons.*—Experience in the fleet has demonstrated that the present frequent overhaul periods for battleships do not give the most efficient results. Ships that go into overhaul after only one year of service with the fleet are in a generally satisfactory condition and could, to advantage, be continued with the fleet for at least an entire year more.

I recommend that the present schedule of battleship overhauls provide for an overhaul of each ship at the end of a two-year cruise instead of at the end of one year as at present. Battleships utilizing their own resources as well as those of repair ships, are quite able to maintain themselves in an efficient state for a period of at least two years.

The battleship squadrons are composed of 21 vessels in active commission. Four of these are normally overhauling, leaving 17 battleships to operate with the fleet. Five of these 17 battleships are withdrawn owing to various causes affecting material and personnel, beyond control of the fleet, leaving only 12 battleships operating with the fleet at the present time. It is believed that this condition will be materially improved and the battleship squadrons be kept more intact if the foregoing recommendations in regard to overhauls be carried out.

Attention is invited to the fact that if the two-year overhaul schedule recommended for battleships is adopted, and the overhauls started in January and July, a fairly continuous flow of work will be provided for the navy yards, as the destroyer squadron and the submarine flotilla, together with a considerable number of tenders, will be coming to the yards at about the time when the work on the battleships is being completed. The flow of navy-yard work can be still further regulated by overhauling vessels of the mining and sweeping division and vessels of the auxiliary division at periods when the yard work is slack.

14. *Cruiser squadron.*—Attention is invited to the recommendations of the commander of the cruiser squadron, making provisions for overhaul of ships in that squadron and the rotation of duties in connection therewith. Some of these vessels are already in a far from satisfactory condition, and unless some regular schedule for them can be provided and adhered to, these ships can not be expected to be in condition when called upon.

15. *Destroyer squadron.*—The present overhaul schedule for the vessels of the destroyer squadron is satisfactory for the present number of vessels in this squadron. The entire destroyer squadron is overhauled during the months of May and June, and again during November and December.

16. *Submarine flotilla.*—The present overhaul schedule of the submarine flotilla is satisfactory for the limited number of vessels in that flotilla. The submarine flotilla is overhauled from May 1–June 15, and from November 1–30.

17. *Fleet rendezvous.*—Suitable rendezvous for a fleet constitute an important factor in its efficient operation, either in time of war or in time of peace. Such places should have ample facilities for berthing, fueling, provisioning, and handling the personnel of the fleet. Three principal and suitable rendezvous have been and probably

always will be utilized by the Atlantic Fleet, namely, Narragansett Bay, Hampton Roads, and Guantanamo.

As the fleet is growing in size the berthing space in these three harbors for heavy-draft vessels is already being well occupied. In Narragansett Bay all desirable berthing space for destroyers and submarines in the vicinity of the harbor and the landings is already fully occupied and additional vessels will have to be sent some distance up the bay. There should be provided at Melville, or some suitable point in the bay, a number of piers and slips similar to those at the torpedo station, where vessels of this character can berth and rapidly refuel, reprovision, and maintain themselves in a better state of readiness. Such facilities will probably require an appropriation by Congress.

Similarly, at Hampton Roads the facilities for destroyers and submarines are not satisfactory. The anchorage for destroyers is insecure with the fresh winds and strong tides that prevail there during the winter. The facilities for handling the personnel of the fleet are quite inadequate. Looking to the future when one complete fleet will have to base upon this point for its operation, proper provisions should be made in advance, particularly for small craft.

In compliance with the department's directions a board has been appointed to consider the subject in Narragansett Bay, and the conditions at Hampton Roads will be similarly treated.

18. *Educational system.*—I desire to reiterate the recommendation of my predecessor in command of the Atlantic Fleet, Rear Admiral C. J. Badger, that greater efficiency to the service will be obtained by abolishing the compulsory feature of General Order No. 63, of December 16, 1913. With the compulsory feature omitted there will be more facilities for teaching and helping those who are ambitious to advance themselves.

19. *Staff reports.*—Attention is invited to the appended reports of my staff covering in detail many of the subjects already discussed in this report.

20. *Résumé.*—In brief, the principal weaknesses and requirements of the fleet are as follows:

(*a*) Shortage of officers.

(*b*) Shortage of men.

(*c*) Lack of fast armored ships and fast light cruisers.

(*d*) Limitations of mobility and seagoing qualities of submarines.

(*e*) Lack of aircraft.

(*f*) Lack of radio direction finder.

(*g*) Too frequent overhaul of battleships.

(*h*) Necessity of maintaining full complements in active ships of the fleet.

(*i*) Need of additional mining and sweeping vessels.

(*j*) Desirability of mobilizing ships in reserve annually with the active fleet.

(*k*) Need of battle target practice at long ranges.

(*l*) Necessity for increased facilities at fleet rendezvous.

(*m*) Provision for division commanders for mining division and auxiliary division.

(*n*) Provision for more speed in design of fighting craft intended to operate with the fleet.

(*o*) Need of anti air-craft guns.

F. F. Fletcher.

SUPPLEMENTARY REPORT ON FLEET OPERATIONS TO OCTOBER 15, 1915.

UNITED STATES ATLANTIC FLEET,
U. S. S. WYOMING, FLAGSHIP,
Navy Yard, New York, N. Y., October 26, 1915.

From: Commander in chief.
To: Secretary of the Navy.
Subject: Supplementary report on fleet operations to October 15, 1915.
Reference: (*a*) Commander in chief's annual report, No. 716–15 (15) of August 21, 1915.

1. Since forwarding my annual report of August 21, 1915, elementary target practice has been held, the department's strategical maneuver No. 2 has been carried out, and the summer maneuvers completed.

2. The results have been very satisfactory, and this information may be of additional value to the department at the present time.

TARGET PRACTICE.

3. The commander in chief is pleased to report a marked improvement in the scores made. Comparing this practice with the corresponding practice of last year, for which the rules have remained practically the same, the fleet gunnery officer reports improvement, as follows:

First division—*Wyoming*, *Arkansas*, *Texas*, 41.8 per cent.

Second division—*Utah*, *Florida*, *South Carolina*, *Michigan*, 15.4 per cent.

Third division—*Virginia*, *New Jersey*, *Nebraska*, *Georgia*, 42 per cent.

4. This shows an average increase for the foregoing vessels of something over 30 per cent.

5. The rules of the competition have varied from year to year, so that it is difficult to make an exact comparison with the work of preceding years, but, making due allowance for all changes, it is believed the scores recorded above are higher than ever made before in the open sea.

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All scores show not only an increase in accuracy of pointing but in rapidity of fire as well.

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6. Most of the firing was done under very favorable conditions of sea, but the improvement was due in a large measure to the steps that have been taken to ascertain the errors of gunfire and improve the gunnery efficiency of the fleet. In carrying out this plan boards of officers were appointed to make an accurate record of the data in

each step that takes place in the cycle of fire control—this with a view to analyzing and locating the causes of errors. Other boards were appointed to investigate and standardize the methods of training and control in the different types of ships. These boards suggested means and assisted in eliminating faulty methods and in concentrating the attention of gunnery officers on the vital elements affecting the control of gunfire.

7. The first boards referred to above followed the general lines laid down by the board of expert observers appointed a year ago to witness elementary target practice of the *Michigan*. It is believed that the boards assisted greatly not only by their helpful suggestions but by concentrating the attention of officers on the various sources of error that must be guarded against to secure satisfactory results. A systematic plan is in operation having for its object the determination of errors, their analysis, and elimination. Methods of training and control are being standardized, and the resultant efforts and enthusiasm of the entire personnel gives promise of still further improvement.

DEPARTMENT STRATEGICAL MANEUVER NO. 2.

8. The object of these maneuvers as defined by the general board was to exercise the available Atlantic Fleet as a single command under approximate war conditions. The plan adopted for carrying out these maneuvers was well suited for exercising the fleet and trying out its operating efficiency in all its units of command, in testing the material, and in exercising the personnel. At the same time it required and simulated movements and conditions that might obtain in war. The results showed the fleet to be in a very satisfactory state of efficiency with the exceptions noted in the report upon the maneuvers.

9. Seventy-eight vessels of different types took part in this problem and operated under the various sea conditions encountered, scouting and maneuvering at night without lights and at high speeds. Subordinate commanders and commanding officers formed a rendezvous at sea with precision, interpreted and executed the orders of the commander in chief correctly, and displayed initiative and skill in handling new situations. At all times during the problem the ships were maintained on a war basis with decks cleared and officers and men at their stations night and day. In addition to the usual lookouts, special lookouts were detailed for enemy aeroplanes and submarines. The commander in chief was at all times in close touch with the Navy Department, using direct communication between his flagship and the Arlington Radio Station. Direct communication by means of the smaller radio equipment was maintained for a distance of about 350 miles offshore, after which the primary system of communication was employed. The commander in chief was also in direct touch with all his subordinate commanders at all times and additional orders and modifications of plans were made without difficulty as the problem progressed. To keep all forces in touch with developments the commander in chief issued two bulletins daily containing such information of enemy forces and of our own forces as would prove of general use and interest. Similar bulletins were sent

to the department, as well as the 8 a. m. and 8 p. m. positions. During the progress of the problem a number of constructive casualties were sent to the department to simulate the conditions of actual war and to assist the department in developing their organization and facilities for cooperating with the fleet.

10. All the operations in these maneuvers were successfully carried out with the exception of the movements of the submarines, and the results reflect credit on the personnel and material of the fleet.

SUMMER MANEUVERS—INCREASING SIZE OF THE FLEET.

11. The summer program of the fleet was largely given up to developing and exercising the major organizations of the fleet as separate commands. These separate commands exercised at torpedo firing, mining, sweeping, night search, gunnery training, steaming exercises, coaling at sea, etc.

12. While in Narragansett Bay a large number of officers were detailed to the War College to attend the specially prepared course of instruction and lectures intended to keep the officers of the fleet in closer touch with the work of the War College. For a part of the summer two divisions of battleships were based on Cape Cod Bay with a view to familiarizing officers and men with the conditions in that locality.

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13. During the past year the number of units assigned to the fleet has been increased more than 15 per cent, resulting in a better balanced fleet, as was shown by the maneuvers in August. There are now in the Atlantic Fleet 118 vessels of various types, manned by a force of more than 27,000 men. Among the vessels added are two mine layers, the *Baltimore* and the *Dubuque*. These vessels, together with the *San Francisco* and four tugs, are especially employed in the important work of mining and sweeping. A number of new destroyers have been added, bringing up the strength of the destroyer flotilla toward the proportions recommended by the General Board; that is four destroyers for every battleship. Three large fuel ships, the *Cyclops*, *Orion*, and *Jupiter*, have been added to the fleet, greatly facilitating the work of fueling the fleet, and making it independent of local sources of fuel supply. In the feature of rapid fueling the Atlantic Fleet is believed to have made records that are not surpassed by any other fleet. The *Cyclops* is fitted with a device for coaling at sea which has demonstrated its utility in coaling three battleships under various sea conditions with satisfactory rates of delivery. The same coaling engine has demonstrated its fitness for towing, by satisfactorily towing both battleships and destroyers.

14. A number of tenders have been added that have assisted in keeping in repair the destroyers and submarines and rendering them less dependent on shore stations for their upkeep.

15. The addition of these various vessels has provided a better balanced fleet—that is, a fleet better adapted for carrying on the various operations of war. The addition of these units has required a modification of the organization of the fleet so as to permit the combining of similar types of vessels under separate organizations,

with a view of permitting each type to satisfactorily develop its special uses as well as to facilitate the command and control of the whole fleet.

16. The commander in chief believes that the forming of the cruiser squadron has been a marked advance in the organization of the fleet, and the formation of other types of vessels into squadrons will be recommended to obtain more effective operation. While important events in the Mediterranean, Caribbean, and Mexican waters were being satisfactorily handled, the rest of the fleet was left free to carry on, without interruption, the department's strategical problem No. 2, which permitted all organizations of the fleet, except the cruiser squadron, to be operated and exercised under the direct orders of the commander in chief.

F. F. FLETCHER.

ACTION TAKEN TO ADVANCE THE EFFICIENCY OF THE ATLANTIC FLEET.

JANUARY 14, 1916.—Referred to the Committee on Naval Affairs and ordered printed in confidence for the use of the Senate.
JANUARY 19, 1916.—Injunction of secrecy removed.

Mr. TILLMAN submitted the following

LETTER FROM THE SECRETARY OF THE NAVY, TRANSMITTING TO THE CHAIRMAN OF THE SENATE COMMITTEE ON NAVAL AFFAIRS CERTAIN STATEMENTS RELATIVE TO THE ACTION TAKEN BY THE NAVY DEPARTMENT TO ADVANCE THE EFFICIENCY OF THE ATLANTIC FLEET.

THE SECRETARY OF THE NAVY,
Washington, January 11, 1916.

MY DEAR MR. CHAIRMAN: In response to Senate resolution No. 60 I have to-day transmitted to the President of the Senate the annual report of the commander in chief of the Atlantic Fleet for the year ending June 30, 1915, and a supplementary report of fleet operations to October 15, 1915; and for the information of your committee I am giving you below several statements regarding the action which has been taken by the department to advance the efficiency of the fleet in accordance with the recommendations of the commander in chief.

The commander in chief prefaces his report by stating that "in order to limit the report to moderate length it has been found necessary to omit discussions of the many satisfactory features of the fleet and to invite attention more particularly to its operations, condition, and requirements," so it may properly be concluded that this report is an account of the needs of the fleet and suggestions designed to supply them.

As you are informed on the naval situation you are aware that "the principal weaknesses and requirements of the fleet," summarized by the admiral on page 23 of his report, have been of long standing. Some were in process of correction before his report was written. Others within the scope of the department's authority have since been remedied, and recommendations are already before Congress for such other needs as the department has approved and can not provide without congressional action. We have already acted upon practically every suggestion and steps have been taken to remedy the conditions.

The admiral reports the principal weaknesses and requirements of the fleet to be as follows:

(*a*) Shortage of officers.
(*b*) Shortage of men.
(*c*) Lack of fast armored ships and fast light cruisers.
(*d*) Limitations of mobility and seagoing qualities of submarines.
(*e*) Lack of air craft.
(*f*) Lack of radio direction finder.
(*g*) Too frequent overhaul of battleships.
(*h*) Necessity of maintaining full complements in active ships in the fleet.
(*i*) Need of additional mining and sweeping vessels.
(*j*) Desirability of mobilizing ships in reserve annually with the active fleet.
(*k*) Need of battle target practices at long ranges.
(*l*) Necessity for increased facilities at fleet rendezvous.
(*m*) Provision for division commanders for mining division and auxiliary division.
(*n*) Provision for more speed in design of fighting craft intended to operate with the fleet.
(*o*) Need of anti air-craft guns.

Responsibility for the existing shortage of officers is attributable, of course, to conditions antedating my incumbency as Secretary of the Navy. The first man to enter Annapolis under the present administration is still a midshipman, and will not graduate until 1917. Deficiencies are most pronounced, as indicated by Admiral Fletcher, between the grades of captain and junior lieutenant. The present commanders graduated from Annapolis from 20 to 25 years ago, and the most recently commissioned junior lieutenant received his diploma at Annapolis in 1912.

The number of officers in these and the higher grades, as you know, are limited by an act of Congress passed in 1899. During the intervening years the Navy was substantially increased by legislation, and any shortage of officers in these grades is owing to lack of provision for increasing the number of midshipmen at the time when increases in material were authorized.

But if our battleships are short of officers to-day they have been short during all the preceding years. The standard complement has not been changed, and the one now in vogue is the one which has been in operation for a long term of years. If the *Delaware* is to-day short of officers with a complement of 27 line officers, only 13 of whom are ensigns, she was short also in March, 1913, when she had but 26, of whom 17 were ensigns. To-day she has 14 officers above the grade of ensign, whereas on the earlier date she had but 9. And so, too, with the *Wyoming*, *Arkansas*, *Florida*, and *Utah*, the other dreadnaughts then and now operating with the fleet. If they lack officers above the grade of ensign to-day, manned by 15, 16, 14, and 14, respectively, an average of 14¾ above the grade of ensign, they were also short on March 1, 1913, when they had only 11, 12, 13, and 11, respectively, or an average of 11¾ per ship. Officers, as Admiral Fletcher emphasizes, can not be made in a day; therefore the existing shortage of officers is due to the lack of provision 6 to 10 years ago.

One of my first recommendations to Congress, transmitted but a few weeks after I assumed office, urged the extension of the law of

1907 providing for two midshipmen to each Member of Congress. That law was to have expired the 30th of the following June, as the preceding Congresses had not extended its life. Feeling the necessity of remedying, as far as I was able, the shortage of officers then existing, I urged this course upon Congress, and owing to its favorable action, more than 300 new midshipmen entered the academy that summer. If such action had not been taken only half as many would have entered. This increase will be felt, of course, as soon as the class entering in 1913 graduates from the academy.

There is now before Congress my current recommendation that the number of midshipmen at Annapolis be further increased by one additional midshipman for each Member of Congress, 531. I hope most earnestly that favorable action will be taken, and if so it is altogether improbable that future admirals will feel impelled to direct the department's attention to a shortage such as that to which Admiral Fletcher refers.

There are also before Congress certain other recommendations which I have made, providing for the immediate commissioning of a number of qualified engineers and aviators. These recommendations were made in recognition of the time required to obtain officers through Annapolis, and to supply the immediate requirements of the fleet in these branches. The acquisition of the number of such officers recommended will relieve the existing shortages considerably until the service feels the result of the increased number of officers now undergoing training for engineering and aviation duties.

During the last two years a number of new vessels have been completed, and because of conditions throughout the world, and particularly in the Gulf and Carribean waters, the Navy has been called upon to commission a number of ships formerly held in reserve. While on the 1st of March, 1913, only 182 serviceable vessels were in commission the fleet had grown so that on December 1, last, there were in commission 238 serviceable vessels. To man these new vessels and to commission for active service those others which were formerly in reserve required the active services of a larger number of men than were required two and one-half years ago.

To meet this condition additional men were necessary, and recruiting was one of the first matters to receive our attention. The Navy was not attracting new men in sufficient numbers, nor was it retaining for further service the large number of experienced men whose enlistments were expiring daily.

From March, 1909, to March, 1913, there were 10,360 desertions. Only 54 per cent of the men discharged in good standing reenlisted, and while Congress had increased the authorized strength of the Navy in August, 1912, there were actually fewer men enrolled on March 3 following than at the close of the preceding fiscal year. Under the law it was possible to enlist 52,974 men, but on the 3d day of March, 1913, the number totaled only 47,347. It was manifestly plain that these conditions would have to be corrected, for without additional men the large number of ships now required in active service could not have been commissioned. You will be gratified to learn, I am sure, that this deficiency of nearly 6,000 men has been overcome, and that there are to-day over 53,000 men in the service. Desertion is rapidly disappearing, and we are reenlisting 85 per cent of the men who have received discharges permitting their reenlistment. When the fleet sailed for Guantanamo on the 6th of this month the complement of every vessel, including destroyers, was filled, and the department is reliably informed that the enlisted complements of our ships are as liberal as those of similar ships in one of the great navies now at war. Looking to the future, I have recommended to this Congress that the enlisted strength of the Navy be increased by 7,500 men, 2,500 apprentice seamen, and 1,500 marines. This number, added to the full quota now enrolled, will prove sufficient to meet the immediate needs of the service in this respect.

The building program recommended to Congress provides for the construction of a number of vessels of the types reported lacking by the Admiral. Ships, like officers, can not be made in a day, and such shortages in ships as now exist are due, of course, to the failure to lay them down three or more years ago, for it takes about three years in which to construct a ship.

All submarines now completed or under construction under acts of Congress antedating March 4, 1913, are of the coast defense type. They were not designed for the qualities described now lacking in the fleet, as stated by Admiral Fletcher.

Our first submarine of the seagoing type was authorized in the first naval appropriation bill passed after March 4, 1913. The second bill contains provision for the construction of two more, and the program now before Congress with my indorsement provides for the construction of a liberal number of vessels of this type.

The department is not content, however, with the performances of the submarine flotilla now in commission, and has for some time been giving diligent study to the submarine situation. It should be recalled that prior to 1913 no submarine organization existed. The nine submarines in commission with the Atlantic Fleet were appended to the destroyer flotilla, while two more were in commission unattached and two were in reserve. Of the 11 boats in commission, 2 were commanded by lieutenants, 2 by lieutenants (junior grade), and 7 by ensigns, and these officers, with 14 additional ensigns under instruction, 1 lieutenant, 3 lieutenants (junior grade), and 3 ensigns on tenders constituted the commissioned strength of our submarine service as late as two and one-half years ago.

It was felt that much better results could be achieved by the assignment of more experienced officers to these important duties, and a reorganization has been underway for some time. To-day there are assigned to the submarine flotilla with the Atlantic Fleet a rear admiral, a commander, a lieuenant commander, 15 lieutenants, 35 lieutenants (junior grade), and 3 ensigns. Ten additional officers are with the flotilla under instructions. This expansion in personnel has enabled the assignment of two officers each to 11 of the 12 submarines in northern waters; and when additional officers have finished their courses of instruction two officers will be assigned to all submarines. Of the five boats at Panama three are now commanded by lieutenants (junior grade) and two by senior lieutenants.

The reorganization of the submarine flotilla has involved the training of men, as well as officers, preparatory to their being assigned to submarine duty. No man will now go aboard a submarine unless he has been specially trained for the work, and on the cruiser

Columbia, the flagship of the submarine flotilla, there are now a large number of men receiving instruction. Only recently 40 officers and 85 men concluded a course of instruction in battery work at the plant of the Electric Storage Battery Co. and that of Thomas A. Edison. Such instruction is absolutely essential to the efficient handling of these vessels. The preliminary training of crews (the crews, officers, and men of four L boats not yet delivered are already trained and assembled) will, it is believed, result in higher efficiency and reduce to a minimum former defects in our submarine service due to the inexperience of crews.

Our present air fleet is as yet not more than two years of age, and considering the time in which aeronautics has been given the consideration it deserves in the Navy, its progress is really gratifying. Two and one-half years ago we had but four aviators and no satisfactory machine. During the intervening time 21 commissioned officers have qualified as air pilots, and 14 more, besides 10 petty officers and 131 enlisted men, are under instruction for the various duties required of aviators.

A special training school for aviators has been established at Pensacola, Fla., where this corps is now operating, and by the 1st of March 37 machines will be in operation at the station. Not only has it been necessary to instruct aviators, but also to design air craft. Our progress in this work is such that it is expected our aviators will be exercising with the fleet during this winter's maneuvers, and that soon thereafter a division of ships with complements of flying machines and aviators will become part of the regular fleet organization.

The question of frequent overhauling of battleships was one of the first to receive the attention of Rear Admiral Benson, the first Chief of Naval Operations, who was appointed by the President on the 11th day of April, 1915. Instances are frequent where battleships less than two years of age have, in accordance with the routine schedule, proceeded to a navy yard for overhauling. Under the new system no vessel will go into overhaul until after she has been subject to inspection by the Board of Inspection and Survey, and the equipment for her repairs assembled ready for immediate work on the arrival of the vessel at the yard. This practice will assure the presence of all vessels with the fleet, except in cases where urgent repairs are required, and by the assembling of material prior to the arrival of vessels at yards their absences from the fleet will be reduced to the shortest time possible.

In the preliminary design of ships, construction of which is now recommended to Congress, provision has been made for increased speed in various types of fighting craft intended to be incorporated in the fleet.

As for the need of antiair-craft weapons, these defects will presently be remedied. As in the case of submarines, air-craft, and mining apparatus, it was necessary for the department to make a fresh start after I came into office. No satisfactory type of antiair-craft gun existed. One had to be designed, manufactured, and tested. All this has been accomplished within the last 18 months. Work on the manufacture of a quantity of such guns was begun some time ago, and the first allotment will be placed on board ships of the fleet within three months.

We early recognized the importance of mining and mine-sweeping equipment, and immediate steps were taken in the spring of 1913 to develop this important arm of the service. In March, 1913, the Navy had but one mine-depot ship, the *San Francisco.* The act of Congress of 1908, which provided for the conversion of the *San Francisco* into a mine-depot ship, provided also for the conversion of the *Baltimore*, but up to March, 1913, this work had not been completed. It was immediately pushed, and the *Baltimore* joined the fleet some time ago. Since then, the mining division has been organized, and the mine layer *Dubuque* and a number of fleet tugs equipped as sweepers, have been assigned to it for conducting experiments and the training of crews. This organization, as will be noted, has also been created within the last two years. A large number of other vessels of the fleet have been equipped with mine-laying and mine-sweeping devices for use in emergencies. We have further realized the entire practicability and the great value of light merchant craft for this service and have investigated and surveyed a large number of these vessels considered suitable for such uses in time of war. With the knowledge that has been acquired in the mining division of the fleet the Navy is better prepared than ever before for the quick and proper equipping and manning of such additional vessels as it may be found necessary to utilize.

Our activities in mining work have extended to the equipment of the fleet with entanglements, nets, and mines. No such equipment, except a few mines of an antiquated type, was in existence, or even designed, up to two years ago. The first order for nets was placed on April 21 of this year, and a considerable quantity is already in southern waters for use in connection with the maneuvers of the fleet in Caribbean waters this winter. The utility of such equipment is so favorably regarded by the department that I have in my estimates this year added an item of $40,000 for the acquisition of more.

The commander in chief also recommends division commanders for the mining division and the auxiliary divisions. These recommendations were approved some time ago, and divisional commanders provided. In this connection I desire to transmit, for the information of the committee, the attached diagram showing the organization of the Atlantic Fleet on January 1 of this year as compared with its organization on March 1, 1913. These diagrams conclusively demonstrate the satisfactory progress that has been made in the more efficient organization of that well-balanced fleet, which is the object of our efforts.

It will be noted that in his supplementary report, Admiral Fletcher refers specifically to the fact that "during the past year the number of units assigned to the fleet has been increased 15 per cent, resulting in a better-balanced fleet," and that the addition of the various types of vessels "has provided a better-balanced fleet; that is, a fleet better adapted for carrying on the various operations of war."

The commander in chief also reports, as you will note, that "while the rules of the competition (gunnery) have varied from year to year, and it is difficult to make an exact comparison with the work of preceding years, by making due allowance for all changes it is believed the scores recorded (elementary target practice this summer) are higher than ever before made in the open sea," and that "all scores show not only an increase in accuracy of pointing but in rapidity of fire as well." The admiral adds that "the improvement was due, in a large measure, to the steps that have been taken to ascertain the errors of gunfire," etc. This systematic investigation of errors, too, is a creation of the last two years.

In conclusion, Mr. Chairman, let me add that the foregoing facts demonstrate conclusively that the fleet is better organized, the ships more fully manned and more competently officered than heretofore, that our gunnery is steadily improving, and that most of the requirements of the fleet, enumerated by the commander in chief, while of long standing, have already been largely corrected.

Very truly, yours,

JOSEPHUS DANIELS.

Hon. B. R. TILLMAN,
Chairman Senate Committee on Naval Affairs,
Washington, D. C.

64th Congress } SENATE { Document
1st Session } { No. 254

PROHIBITION

ADDRESS

BY

HON. WILLIAM JENNINGS BRYAN

PRESENTING IN SUBSTANCE THE LINE OF
ARGUMENT FOLLOWED BY HIM IN THE
SIXTY SPEECHES MADE IN OHIO DURING
THE WEEK OF OCTOBER 25 TO 30, 1915

PRESENTED BY MR. SHEPPARD

January 25, 1916.—Ordered to be printed

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

PROHIBITION.

[The following address presents in substance the line of argument followed by William Jennings Bryan in the 60 speeches made in Ohio during the week of Oct. 25 to 30 1915.]

Opposition to the manufacture and sale of intoxicating liquors rests upon the proposition that alcohol is a poison which, taken into the system, weakens the body, impairs the strength of the mind, and menaces the morals. This proposition is either true or false; if it is false, then the cause of prohibition fails, and not only the cause of prohibition, but all regulation of the liquor traffic. If this proposition is sound, it will be difficult to find a valid reason for permitting the manufacture and sale of alcoholic liquors as a beverage.

We challenge the opponents of prohibition to meet us on this fundamental proposition. Will they accept the challenge? No! Because all history supports the doctrine that alcoholic drinks are injurious. If you will consult your Bibles, you will find that 2,500 years ago Daniel, a Hebrew captive in Babylon, asked that he might be permitted to prove the superiority of water over wine. The prince who was charged with the care of Daniel and his three companions was instructed to feed them with the meat from the King's table and to furnish them wine such as the King used, but, yielding to the eloquent appeal of Daniel, the prince gave them 10 days for the test, and when the time was up he was compelled to admit that Daniel and his companions were "fairer and fatter in flesh than all the children which did eat the portion of the King's meat." From that day to this the test has been going on and never once has it been decided in favor of alcohol.

But you need not rest on the experience of the past; you can test it to-day. Select 100 young men from any country or from any clime—no matter under what form of government they live or what language they speak. Divide them into groups of 50 each; let one group use alcoholic liquor and the other group drink water only, and those who drink water will win the honors in the colleges, take the prizes on the athletic fields, and prove their superiority in every line of business.

UNCLE SAM'S CARE OF YOUTH.

If you visit the naval school at Annapolis, Md., you will find there more than 800 young men, the pick of the country, selected from every congressional district in the United States. They are being trained at Government expense for Government service, and Uncle Sam is anxious that they shall show the maximum of efficiency and capacity. These young men are not allowed to use alcohol during their stay in the college. Why? Because the Government believes that alcohol is harmful. If the opponents of prohibition think that the use of alcohol is a benefit, why do they not attack the Government's policy and compel the college authorities to give alcohol to the students? And if alcohol is injurious, why is not every father and every mother as anxious about the welfare of a son as Uncle Sam is about the welfare of the boys intrusted to his care? But it is not necessary to multiply illustrations. Experience has everywhere and always been against alcohol. It has been not only accused but convicted of being an enemy of the race.

All hail to the drink of drinks—to water, the daily need of every living thing! It ascends from the earth in obedience to the summons of the sun, and descends in showers of blessings. It gives of its sparkling beauty to the fragrant flower; its alchemy transmutes base clay into golden grain; it is the radiant canvas upon which the finger of the Infinite traces the rainbow of promise. It is the beverage that refreshes and brings no sorrow with it—Jehovah looked upon it at creation's dawn and said "It is good."

BUSINESS WORLD AGAINST INTOXICANTS.

It is so well known that the use of liquor is indefensible that the business world is throwing its influence against even the moderate use of alcoholic drinks. The man who drinks is the last one to find a job when employees are wanted and the first one to lose his job when employees are being dismissed. This economic pressure is being brought to bear against alcoholic liquors throughout the industrial world. If any of you think that drinking is a business advantage to any man anywhere, let me suggest a test which you can apply between now and election day, and if your vote is governed by the test you will vote for prohibtion on next Tuesday. Here is the test: Go to the best friend you have and ask him for a recommendation; tell him to make it as strong as possible. After he has said all the good that he can of you let him write at the end of the recommendation three words—write them in red ink, so that they will be sure to be seen—"And he drinks." Then take the recommendation to any man who has money enough to employ another and watch his face when he reads the recommendation—and then wait for a job. No brewer, distiller, or saloon keeper ever added those words to a recommendation given to a friend—find such a recommendation if you can. If the men who make liquor and sell it know its effect well enough never to put in a recommendation that the man recommended drinks, why should anybody else think it an advantage in business?

If you think that a saloon helps a town answer this question: Did you ever know a "wet" town to put the number of saloons on any sign board or in any advertising literature? The number of banks, business houses, factories, colleges, schools—all these are mentioned as attractions, but not the number of saloons or the amount spent in them. Why?

If the use of alcoholic liquor is an injury and if this fact is universally known, why is its sale as a beverage licensed? The arguments against the saloon are as conclusive as the arguments against alcohol itself.

IF A BENEFIT, WHY THE TAX?

Let me pass on to you an argument which was given to me by a retired farmer in southern Nebraska. He moved into a village to spend the latter days of his life and soon after he had reached the village was solicited to sign a petition for a man who wanted to open a saloon there. He refused to sign the petition, and, when asked for his reason, replied that the town did not treat the saloon keeper fairly. The applicant for a license had heard many other reasons, but never having heard that one given before, he asked the man to explain. The explanation was like this: "You want to start your saloon for the benefit of the town, don't you?" "Yes," replied the would-be saloon keeper. "You think it will bring trade to the town and improve business, don't you?" "Yes," said the man who wanted the license. "Well," said the farmer, "if your saloon will help the town, draw trade, and improve business they ought to give you a bounty instead of making you pay a high price for the privilege of starting a saloon."

Can you escape this logic? You know that the saloon is not a legitimate business in the sense in which you apply that term to other business enterprises. If a grocer wants to open a store in your city, you welcome him as you do the man who wants to start a hardware store, a bank, a restaurant, a butcher shop, or any other place of business, except the saloon. But if a man wants to start a saloon you meet him at the city limits and say to him, "You can not open a saloon in this city unless you pay the city $1,105 a year, and even then you must submit to certain restrictions. The butcher shop can open at any hour in the morning, but your saloon can not open before a certain hour. The restaurant can stay open as long as it wants to at night, but your saloon must close at a certain hour. Everybody else can sell anything else to anybody at any time, but if you open a saloon in this town you must not only comply with the restrictions named but you must agree not to sell to anybody under age or overdrunk." Why do you make this distinction between the men engaged in other businesses and the man running a saloon? Because you recognize that the saloon is an injury, and, therefore, you subject it to different treatment from that accorded people in other business.

THE ABSURDITY OF LICENSE.

How absurd it is to license a man to make men drunk and then fine men for getting drunk. I heard this illustrated many years ago, and I know of no better illustration of the inconsistency of the policy. A man said that it was like licensing a person to spread the itch through a town and then fining the people for scratching.

Suppose a man applied for a license to spread hog cholera throughout this country, would you give him a license? No. He could not bring enough money into the country to purchase a license to spread disease among the hogs. Why, then, will you license a man to spread disease among human beings—disease that destroys the body, robs the mind of its energy, and undermines the morals of men?

What excuse do the representatives of the brewery, distillery, and saloon give for opposing prohibition? They formerly insisted that any interference with the sale of alcoholic liquor was an attack upon individual rights, but that argument has been so completely answered that we do not hear much of the personal-liberty plea now. No man can assert as a right that which interferes with the equal rights of others, neither can any man insist that respect for his rights requires the toleration of a system that invades the more sacred rights of others. No man can claim that his right to drink intoxicating liquor requires the licensing of a saloon which pollutes the locality in which it is situated and brings want and misery and violence into the homes around it.

And I call you to witness that the brewer and the distiller understand the saloon; they are not willing to have a saloon located near them. As a rule, they live in the fashionable part of the city and would not sign a petition for the location of a saloon near where their families reside. They know it would reduce the value of their property and subject their children to an objectionable environment. No; they will not have a saloon near them, but they will locate their saloons among the poor, knowing full well when they do so that their saloons will absorb the money that their patrons ought to spend on wife and children. They not only impoverish the poor and multiply their sufferings, but they increase the death rate among the children. Who will defend them before the bar of God when they are confronted with the violation of the commandment "Thou shall not kill"?

AS TO COMPENSATION.

And yet we are now told that society ought to reimburse the liquor dealer if prohibition causes him any financial loss. Superlative impudence! There are two answers to this insolent demand. One is that prohibition does not take from the liquor dealer one foot of land that he now owns; it does not remove one brick from any building that he occupies. It simply requires him to put his land and building to a different use. Will any man complain that you lessen the value of his gun because you say that he must use it on game and not on human beings?

If you close a saloon the building stands there as useful as ever, with the possible exception of the fixtures. Let the saloon keeper turn his building into a bakery and sell bread to the people who have gone hungry because the money that ought to have bought bread has been used for drink. Will the brewer suffer? His building can be used for other purposes. In prohibition States breweries and distilleries have been converted into packing houses, pickle factories, and into plants for the manufacture of nonalcoholic drinks. At Salem, Oreg., a brewery is now used for the manufacture of loganberry juice, the substitute for grape juice in that State. I believe in conversion. The most important conversion is the conversion of the individual from sin to righteousness. Among the nations the most important conversion is the promised conversion of the swords into plowshares, and in business I know of nothing better than the conversion of an alcohol plant into a factory for the production of something which is helpful and wholesome.

But there is another answer to make to the demand for compensation. Let the liquor dealer compensate the mother for the son he has taken from her; let him compensate the wife for the husband of whom he has robbed her; let him compensate the children for the father whom he has first transformed into a brute and then driven to suicide. Let him compensate those whom he has wronged by restoring to them the priceless value of homes ruined and lives wrecked, and then society will be glad to compensate him for whatever pecuniary loss he may suffer by the closing of a business which he knew to be harmful—a business which can not thrive except as the community suffers.

Does the liquor dealer intend to make restitution for what he has taken in the past? No! He is not even willing to protect society from the evils which daily flow from his business.

LET THEM IMPOUND THE TAILINGS.

A few years ago I was traveling in the mountains of Arizona and my attention was called to a muddy pond by the side of the road. It was so different from the clear mountain pool that I inquired about it, and this was the explanation. In the early days the stamp mills poured the tailings into the mountain streams, but the people below complained that the water which they had to use was polluted. This complaint resulted in the passage of a law that compelled the stamp mill to impound its tailings, and now when the precious metal is extracted from the rocks the worthless stuff that remains is impounded and the waters that flow down the mountain streams are pure.

Why not make the brewer, the distiller, and the saloon keeper. impound their tailings? They draw the young men of the country into their places of business, they crush them, they disfigure them, they extract from them all that is precious, and then they pour the tailings out upon society—they make society pay for the insane, the pauper, and the criminal. Instead of asking society to compensate them for the small pecuniary loss that they may suffer from the abolishing of the manufacture and the sale of intoxicating liquors they ought to be grateful for the favors which have been shown them. They have by far the best of the bargain, even on the low plane of dollars and cents. They have taken from society immeasurably more than they have paid back to society.

TO BUSINESS MEN.

A word to the business men of Ohio. Why do you enter into a copartnership with the brewer, distiller, and saloon keeper against the people with whom you deal? Your trade, especially that of Cincinnati, is with the territory south of you. The city of Cincinnati built a railroad into the South for the purpose of developing commerce with that section. The Southern States with which Ohio has business dealings are now dry, with the exception of Kentucky, and in that State a large majority of the counties are dry, Kentucky having the county unit, which Ohio abolished last year. In the State of Ohio 504,000 voted for prohibition last year, and yet a considerable majority of the large business men of the State have been unwise enough to enter into copartnership with the saloon, a business which is not only the open enemy of the home and a corrupting influence in politics, but is destructive of economic strength and efficiency.

A year ago the business men of the larger cities of Ohio joined the liquor interests in disfranchising the farmers of the State. You then had the county unit and the farmer had a voice in determining whether saloons should be licensed in the county, but you have taken that right from him at the bidding of the liquor interests. You have returned to the city unit, and instead of limiting the sale of liquor to those living in the city—that is, to those who are responsible for the granting of the license—you permit a saloon keeper in a town to sell to the inhabitants of all the country round about. You allow the saloon keeper to fill a country boy with alcoholic liquor and send him out into the country to spread terror in his neighborhood, and yet you deny a vote to those whose peace is disturbed and whose lives are menaced.

THE SALOON A NUISANCE.

Why is a slaughterhouse a nuisance? Because its noisome odors can not be confined to the land on which it is situated. And who has a right to complain of a slaughterhouse? Everyone has a right to complain as soon as the odors of the slaughterhouse reach him. And why is a saloon a nuisance? Because its evil influences can not be confined to the block in which it is located or to the city which licenses it to do business. And who has a right to complain of a saloon? Everyone who lives within the radius of its evil influence—everyone who suffers from the use of the liquor which it sells.

You need not be surprised if these disfranchised farmers administer political punishment to those who have deprived them of the right to protect themselves against the saloon. Last year their choice was between the county unit and State prohibition; to-day with the county unit gone their only hope is in State prohibition which establishes a still larger unit and gives security over a greater area.

AN INJUSTICE TO GERMAN-AMERICANS.

A word also to the German-Americans. A great many of the citizens of Ohio are of German birth or ancestry, and an effort has been made to identify them with the liquor interests. The German-American brewers have done injustice to those of their name and race by the attempt to make it appear that prohibition was an attack upon all German-Americans, whereas it is simply an attack upon a business. The liquor question raises a moral issue, and no real friend of the German-American will attempt to draw a line between him and the rest of the country on a moral question. Already the German-American organizations are giving voice to the rising protest against the selfish and sordid attempt which those engaged in the liquor business have made to turn the liquor question into a race question. The German-American Alliance in New York has within a year adopted a resolution demanding that representatives of the liquor traffic speak for themselves and not for the German-American Alliance when they appear before legislative bodies. And the German-American Alliance of the United States at its national meeting at San Francisco a few months ago, instead of declaring against prohibition, declared in favor of reforming the saloon.

The alliance is to be congratulated upon its refusal to be made the mouthpiece of the brewers in their fight against prohibition, but the plea for the reform of the saloon comes too late. It might have been effective a few years ago, but the saloon has sinned away its day of grace. It made itself the ally of the gambling house and the brothel; it allowed itself to become a bureau of information on crimes and the center of every political and social disease. It is too late to begin the work of purification; if it is to be washed and made clean, let it be at the morgue when it lies in state with its victims.

"BLIND TIGERS."

The opponents of prohibition having been driven from every other position have fallen back upon their final stand, namely, that prohibition does not prohibit. They tell us that the law can not be enforced; that liquor will be sold anyhow. They are the only element of society that announces in advance that it will not obey the law; it is the only element that boasts of lawlessness, but even here the facts are a complete answer. Statistics show that in this State there is more illicit selling in wet counties than in dry counties. Only a few months ago the saloon keepers of Cleveland sent a delegation to the governor to complain of the selling of liquor without license. Those who paid the license protested against those who were selling without sharing the burden of the tax.

But the very language which the advocates of the saloon use in describing illicit sales shows that they understand the nature of their business. When they speak of the place where liquor is sold without license, what name do they use? Do they call the place a blind sheep or a blind goat? No! They call it a "blind tiger." They name it after an animal which is ferocious by nature—they know the nature of the saloon. Well, if a tiger was after my boy, I would rather have it a blind tiger than one which could see. Wouldn't you? If a tiger is blind, you must look it up; if it can see, it can look you up. The man who sells without license must dodge around and keep himself concealed, but the licensed saloon plants itself in the most conspicuous places and sends out its invitation to all.

LIKENED TO A RATTLESNAKE.

One of the men imported into Ohio to defend the saloon has gone even further than those who talk of blind tigers. He asks, "Would you not rather keep a rattlesnake in a glass case than allow it to run loose in the alley?" But why keep a rattlesnake at all? Why not kill it? How many families would be willing to keep a rattlesnake in the house, even in a glass case? It must have something to eat, and those who feed it are always in danger of being bitten. But to liken the saloon to a rattlesnake—what a confession! And what an apt illustration it is. It must have been by inadvertence that the speaker selected man's earliest enemy on earth, for was it not the serpent that deceived the first pair in the garden? And has it not lived ever since under the curse then pronounced upon it? Is there not additional reason to-day why the seed of the woman should bruise this serpent's head? Is not woman to-day the greatest enemy of the saloon? All praise to the good women of the country whose love for their children and interest in their country make them an increasing influence on the side of temperance and in support of all legislation which has for its object the protection of society from the effects of alcoholic liquor.

The voters of Ohio have an advantage to-day over those who voted on this subject a year ago. A year ago the people of this State knew how ruinous alcohol is to the individual, to the home, and to society. They knew of the enormous burden which the worshipers of the god of drink fasten upon the country. Two billions and a half a year for intoxicating liquor. Think of it! Nearly twice the cost of our Federal Government, and nearly three times the cost of education in this country from the kindergarten to the university. Is not this appalling? In two years the drink bill would gridiron the United States with macadam highways 12 miles apart east and west, north and south, and yet instead of this money being used for good roads it is being used to pave the way to perdition.

WAR FURNISHES NEW EVIDENCE.

Yes; a year ago the voters of Ohio knew the arguments that can be made against alcohol in time of peace but during the last 12 months the war in Europe has thrown a ghastly light upon the evils of intemperance. Whatever difference of opinion there may be as to the cause of the war or as to its conduct all must agree that the nations at war believe that they are in a life and death struggle and all are appealing to the patriotism of their people. And yet patriotism, that impulse, intangible, invisible, but eternal, which has throughout the ages led countless millions to offer themselves a sacrifice upon their country's altar, is no match for the appetite for drink. Loyalty to Gambrinus and Bacchus and Barleycorn is greater than loyalty to King or Kaiser or Czar. The belligerent nations have been compelled to give attention to the subject of drink. Russia has abolished the sale of alcohol throughout her vast domain; France has legislated against the sale of absinthe; Germany has lessened the hours of the saloon and lowered the alcoholic content in beer; and Great Britain has laid restriction after restriction upon the saloon, lessening the hours and forbidding treating. Why shall we not learn without war what the war has taught the European nations.

THE BEST PREPARATION.

There is talk of preparedness and some urge us to get ready for war. I do not agree with those who think we are in danger, but I am willing to join them in one kind of preparation. If this Nation is ever attacked our supreme need will be men—men whose brains are clear; men whose nerves are steady; men who have no appetite that will rob them of their love of country in the Nation's crucial hour. Why not prepare by driving alcohol out of the United States? Then if an attack comes every American will be a man ready to do a man's duty and their bodies will be a wall around our land.

GROWTH OF PROHIBITION.

And now a word as to politics. I am a Democrat. I began making Democratic speeches 35 years ago and have been in every congressional campaign since, except the campaign of 1898, when I was in the Army. I have been on the firing line all these years—the only peace I have had was when I was a soldier. I have been in national politics for 25 years and it is now 19 years since I commenced to run for President. I have been interested in reforms and have rejoiced to see some reforms successful, but it has taken a long time. It took 21 years to secure the popular election of United States Senators; it took nearly 18 years to secure an income-tax amendment to the Constitution, and the fight for the initiative and referendum has been going on nearly that long. Events are moving more rapidly now, but I have never known any reform to grow as fast in five years as prohibition has grown during the last five years, and it has grown more rapidly in the last year than in the four years preceding. We now have 19 dry States and 10 of them have gone dry within the last 18 months.

No Democrat need apologize for being in favor of prohibition. Of the 19 prohibition States 10 of them go Democratic at every election, and other Democratic States will soon be added to the list. Republicans used to make fun of us Democrats; they used to say that they could tell a Democrat by the color of his nose or by the wobble of his walk. They can not make fun of us now. The Democratic States are leading in the fight and the Republicans must help to make Ohio dry, if they want to be in the same class with the Democrats. It will be a benefit to both parties to get rid of the liquor element which owes allegiance to no party, and is interested in no principles of government. It is solely concerned with the money to be derived from the sale of liquor. The time has come to rid all the parties of the domination of this element which disgraces the party while it controls it and betrays it if its control is resisted. Let me make a proposition to the Republicans of Ohio. If you will do your best to drive the liquor interests out of your party, I will do what I can to rid the Democratic Party of the liquor interests—and this is not a matter of sentiment; it is a matter of necessity. There are great questions to be dealt with and we can not expect any aid from those whose only interest is in the liquor business. And then, too, if one party expels the liquor interest the other party is compelled to do so as a matter of self-protection. If we drive the liquor interests out of the Democratic Party and the Republican Party receives them, then the Republican Party will get all of our bad men, and Heaven knows it has enough bad men already. If, on the other hand, the Republican Party drives out the liquor interests and we welcome them, we will get the bad men of the Republican Party—and we haven't room for any more bad men than we now have.

MEET COMBINATION WITH COOPERATION.

Why not meet combination with cooperation? The liquor interests combine against society; why should not the Democrats and Republicans cooperate against the liquor interests? Let us for one day lay aside the tariff question, the trust question, the money question, and other national questions upon which we differ and unite to free the State from the manufacture and sale of alcoholic liquor, and then we shall be ready for the larger task which is not many years off—the task of ridding the Nation of alcohol, its worst enemy, and of the liquor traffic, its greatest evil.

O

64th Congress } SENATE { Document
1st Session } { No. 256

MONUMENT
TO
JOHN TYLER

ADDRESS

DELIVERED IN HOLLYWOOD CEMETERY, AT RICHMOND, VA., ON OCTOBER 12, 1915, AT THE DEDICATION OF THE MONUMENT ERECTED BY THE GOVERNMENT TO JOHN TYLER, TENTH PRESIDENT OF THE UNITED STATES

BY

ARMISTEAD C. GORDON

PRESENTED BY MR. MARTIN OF VIRGINIA
January 26, 1916.—Ordered to be printed

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

COMMITTEE ON DEDICATORY CEREMONIES

HENRY C. STUART,
Governor of Virginia.

GEORGE AINSLIE,
Mayor of Richmond.

LIEUT. COL. J. P. JERVEY,
United States Army.

WM. H. ADAMS,
President Board of Aldermen.

R. L. PETERS,
President Common Council.

BARTON H. GRUNDY,
Member Board of Aldermen.

FRED. H. POWELL,
Member of Common Council.

EDGAR B. ENGLISH,
Member of Common Council.

CEREMONIES.

PARADE.................................MAJ. W. MCK. EVANS, *Chief Marshal.*
Capitol Square to Hollywood.

ORDER OF EXERCISES AT THE MONUMENT.

HIS EXCELLENCY HENRY C. STUART, *Governor of Virginia, Presiding.*

INVOCATION.................................RIGHT REV. ROBERT A. GIBSON,
P. E. Bishop of Virginia.

REMARKS.................................HON. JOHN LAMB,
Patron of the Bill in Congress for the Erection of the Monument.

MUSIC—*America*.................................COAST ARTILLERY BAND,
Fort Monroe, Va.

ADDRESS.................................HON. ARMISTEAD C. GORDON.

MUSIC—*Auld Lang Syne*.................................COAST ARTILLERY BAND,
Fort Monroe, Va.

UNVEILING OF THE MONUMENT.................................MRS. PEARL TYLER ELLIS,
Only Surviving Daughter of President Tyler.

PRESIDENTIAL SALUTE.................................RICHMOND HOWITZERS.

MUSIC—*The Star Spangled Banner*.................................COAST ARTILLERY BAND,
Fort Monroe, Va.

BENEDICTION.................................RIGHT REV. COLLINS DENNY,
Bishop M. E. Church, South.

AN ACCOUNT OF THE ACTION OF THE CONGRESS OF THE UNITED STATES IN PROVIDING THIS MONUMENT.

By an act approved March 4, 1911, Congress authorized the erection of a suitable monument over the grave of the late John Tyler, former President of the United States, in Hollywood Cemetery, Richmond, Va., and by an act approved August 24, 1912, an appropriation of $10,000 was made for the purpose, provided that no part of the amount so appropriated should be expended until the Secretary of War was satisfied of the existence of a responsible legal association for the care and maintenance of the monument, and provided further that when the said monument was erected the responsibility for the care and maintenance of the same should be with such association, and without expense to the United States. In pursuance of this law, the Hollywood Cemetery Co. agreed to take charge of the Tyler lot in Hollywood Cemetery as soon as the monument it was proposed to have placed in the lot was completed, and to keep the lot in perpetual care, having full regard to its sightly and respectable appearance as is done in all other lots in said cemetery that are under the perpetual care of said company, it being understood that the responsibility for the care and maintenance should be without expense to the United States.

The Secretary of War, under date of November 26, 1912, directed the Chief of Engineers, United States Army, to select an officer of the Corps of Engineers, United States Army, to take charge of the construction of the monument, the advertising for bids and designs, conducting all necessary correspondence regarding design of monument and the inscriptions, and the disbursing of the appropriation made by the sundry civil act approved August 24, 1912, for the construction of the monument.

In accordance with the orders of the Secretary of War, the Chief of Engineers, United States Army, under date of December 10, 1912, designated the district engineer officer at Norfolk, Va., to carry out the instructions given.

On December 16, 1913, competitive designs for the monument were invited by the Secretary of War, and as a result of this competition and on the recommendation of the Commission of Fine Arts, Washington, D. C., the design submitted by the T. F. McGann & Sons Co., of Boston, Mass., was accepted.

A contract was entered into with the successful competitors, which was approved by the Chief of Engineers on June 23, 1914. The erection of the monument was completed on June 9, 1915.

The following is the sculptor's description of the monument:

"Essentially the monument will consist of a monolithic granite shaft rising from a granite pedestal before which will be placed a bronze bust of the President, and surmounting which will be a bronze finial.

"The bronze finial will be visible from a considerable distance, and as it is seen to consist of a Greek urn supported between the spread wings of two American eagles, it will indicate at once the burial place of a man of national character.

"Upon a closer approach an heroic bronze bust of the President will be observed resting in a dignified manner upon a pedestal of the monolith after the excellent manner of the ancient Greek sarcophagi.

"On each side of the monolith there will be a bas-relief, the one being a life-sized figure of the Republic with a shield bearing the seals of the United States and of the State of Virginia, significant of his relations with the National Government and his native State. The other will be a draped female figure representing memory, holding in one hand a laurel wreath and cultivating with the other the young tree of the Republic, which during Tyler's administration began to grow and expand in an exceptional manner.

"The four faces of the monolith will be paneled as indicated on the model, and especially will the one on the rear be suitable for an inscription."

JOHN TYLER, TENTH PRESIDENT OF THE UNITED STATES.

ADDRESS DELIVERED AT THE DEDICATION OF THE MONUMENT ERECTED BY CONGRESS IN HOLLYWOOD CEMETERY, RICHMOND, VA., IN MEMORY OF JOHN TYLER, TENTH PRESIDENT OF THE UNITED STATES.

We are gathered together to do honor to a great man, and to dedicate to his memory this monument, erected by the Government of his country that he served with unexcelled fidelity and patriotism. John Tyler, tenth President of the United States, was born at the home of his father, "Greenway," in Charles City County, Va., on March 29, 1790. He came of a distinguished line of Virginians, and all his earlier ancestors of the Tyler name held places of significance in their communities, as justice of the county bench, or sheriff, or coroner.

John Tyler, the President's great-grandfather, who died about 1727, was a justice of James City County; John Tyler, his grandfather, who died in 1773, was marshal of the vice admiralty court; and his father, Judge John Tyler, not only occupied a prominent position as judge of the general court, but he was also speaker of the house of delegates of the general assembly, governor of the Commonwealth, and at the time of his death in 1813, at the age of 65, judge of the United States District Court of Virginia.

The earliest of President Tyler's progenitors in the colony was Henry Tyler, who is first mentioned in the York County records in 1645; and his son Henry, who was himself justice, sheriff, and coroner in succession, was the father of John Tyler, the President's great-grandfather. It is interesting to observe that since the immigrant, Henry Tyler, the line has been one "native and to the manor born," and that in no instance, down to the present generation, have they had their homes elsewhere than in that notable section of Colony and Commonwealth that has been not inaptly designated as "The Cradle of the Republic."

John Tyler, the marshal of the vice admiralty court, married Anne Contesse, only daughter of Dr. Lewis Contesse, a French Huguenot physician, who lived and practiced his profession in Williamsburg during the first quarter of the eighteenth century; and it is doubtless to the blending of the Gallic sprightliness of Contesse with the English steadiness which characterized the Tylers that the remarkable talents of the descendants of this union may be attributed.

Not only has the line of the Tylers since illustrated these talents, but also that of Bouldin in the persons of the descendants of Judge Tyler's sister, Joanna, who married Maj. Wood Bouldin, and was mother of Thomas Tyler Bouldin, Member of Congress, James Wood Bouldin, Member of Congress, and Lewis Contesse Bouldin, long a

State senator; and who was also the ancestress of Wood Bouldin, late judge of the Supreme Court of Appeals of Virginia, and of Powhatan Bouldin, writer and author of "Home Reminiscences of John Randolph of Roanoke." This mingled strain is further distinguished in the talents and abilities of the descendants of President Tyler's sister, Maria Henry, who married John B. Seawell, and was mother of two brilliant lawyers of the Commonwealth, John Tyler Seawell and Machen Boswell Seawell, and grandmother of Miss Molly Elliott Seawell, the novelist.

But, save the President himself, none of the descendants of John Tyler, the marshal, and his wife, Anne Contesse, achieved or deserved a larger fame than did their son, Judge John Tyler. He was the personal friend of Thomas Jefferson and of Patrick Henry, and was imbued with their principles of republican constitutional government. Jefferson said of him that he was "a veteran patriot who, from the first dawn of the Revolution to this day, has pursued unchangeably the same honest course"; and it is worthy of observation that the Sage of Monticello should have thus emphasized in the father the characteristic of consistency, which was one of the most noticeable traits in the career of Judge Tyler's distinguished son.

Mr. Henry's admiration for Judge Tyler was marked. Judge Spencer Roane wrote to William Wirt that "Mr. Henry was very fond of John Tyler as a warm-hearted patriot and an honest and sensible man"; and Roane himself, who adorned with conspicuous ability and learning the bench of the supreme court of the State, said of Judge Tyler that "his understanding was of the highest order," and that he "was plain in his appearance, for his great soul disdained the tinsel of pomp and parade, and was intent only on virtue." Henry Clay said of him on the floor of Congress that "a purer patriot or more honest man never breathed the breath of life"; while the general assembly of his native State resolved of him that he was "a venerable patriot of the Revolution, a faithful and able legislator, judge, and chief magistrate of this Commonwealth, a man of fixed and undeviating integrity, yet endeared to his friends by every softer virtue."

Judge Tyler had been in his youth a student at the College of William and Mary, and in company with Mr. Jefferson he had heard Patrick Henry's speech on the stamp act, and had felt his patriotism kindled by the orator's voice and words. His antagonism to the British Government and his intolerance of its acts of oppression toward the Colonies became so earnest and outspoken that his father was accustomed to predict of him that he would be "hung as a rebel." He served on the committee of safety for Charles City County in 1774, and he joined Henry's troops, with the local company, of which he was captain, when Dunmore removed the powder from the magazine at Williamsburg. The convention of 1776 made him judge of admiralty; but his eager patriotism impelled him to larger activities than those of the bench, and in 1778 he became a member of the legislature. Here he served with ability and fidelity successively as chairman of the committee of justice, of the committee of the whole, and as speaker. His fame as a statesman rests on his steady support in the legislature of the military and financial measures of the American Revolution and of the Jeffersonian reforms during his incumbency of the office of speaker, on his authorship of the resolutions for the Annapolis assembly of 1786, on his stalwart opposition in the Virginia convention of 1788 to the adoption of the Federal Constitution because it permitted the continuance of the slave trade, a measure that was fastened on the country by the votes of four New England and two Southern States of the Union; and on his services as a member of the judiciary, and as governor of the Commonwealth.

His gubernatorial term began on December 1, 1808, a notable year in the history of Virginia, as being that which saw the abolition by England of the African slave trade, which Gov. Tyler had so strenuously opposed in the Constitutional Convention of 1788. His administration of the high office of Governor was marked by the simplicity of his manners and conduct, by the fidelity and uprightness with which he discharged his duties, and by his continual enjoyment in an unusual measure the confidence, respect, and esteem of his constituents. His term expired in January, 1811, and during its continuance, under the influence of one of his messages to the general assembly, on the subject of education and the schools, was established, through the legislative activities of James Barbour, of Orange, a successor in office of Gov. Tyler, the still existing Literary Fund of Virginia.

Judge Tyler's career on the bench was characterized by the same diligent attention to business, uprightness of purpose, and intelligent discharge of duty, that adorned all of his public life. He had studied law for some years under Robert Carter Nicholas, a distinguished jurist and patriot of Judge Tyler's youth, whose name and fame were preserved and enhanced in the lives of his four sons, of whom it has been said: "No Virginia family contributed more to Mr. Jefferson's personal success than the powerful family of the Nicholases—powerful in talents, powerful in probity, powerful in their numbers and union. On every page of Mr. Jefferson's political history the names of George, John, Wilson Cary, and Philip Norborne Nicholas are written."

Having obtained his license, he practiced for a time in James City County, and in 1772 removed to Charles City County. He was judge of the admiralty court in 1776 and again in 1786, becoming, by virtue of the latter appointment, a judge of the first Supreme Court of Appeals of Virginia. Upon the abolition of the State admiralty court by the operation of the new Federal Constitution he was elected, in 1788, a judge of the general court, in which office he continued for 20 years. During his occupancy of the State bench he contributed to the jurisprudence of the country his notable opinion in the case of Kamper *v.* Hawkins,[1] in which he maintained the authority of the Constitution over legislative enactment, and thereby aided in the establishment of the principle in America.

In 1811, upon the expiration of his term as governor, Judge Tyler was appointed by President Madison judge of the District Court of the United States for the State of Virginia. Jefferson, with grim political enmity to his kinsman, John Marshall, doubtless had a sardonic pleasure in breaking through his established rule, "never to solicit an appointment from the President," by asking, in a letter of glowing enconium, the elevation to the district bench of the able and indomitable Tyler, with whom the Chief Justice would sit in holding the circuit court. He wrote[2] of him to Mr. Madison as the only man in Virginia capable of maintaining his own with Judge Marshall: "It will be difficult to find a character of firmness enough to preserve his independence on the same bench with Marshall. Tyler, I am certain, would do it," and his opinion was verified in Judge Tyler's successful contention against the principle of a universal common-law jurisdiction for the Federal courts that was favored by his colleague.

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[1] Virginia Cases, p. 20.

[2] Ford, Writings of Thomas Jefferson, IX, p. 275.

Judge Tyler was an earnest and patriotic supporter of the War of 1812 with Great Britain, and decided the first prize case arising out of the war. He held the office of district judge until his death, at "Greenway," Charles City County, Va., January 6, 1813, and died with the expression of his regret that he "could not live long enough to see that proud British nation once more humbled by American arms."

Judge Tyler married Mary Armistead, only child of Robert Booth Armistead, of York County, Va., a descendant of William Armistead, immigrant to the colony from Kirk Deighton, in Yorkshire, England, who was also a progenitor of President William Henry Harrison, and the two Whig candidates of 1839, "Tippecanoe and Tyler, too," were cousins sprung from a common Armistead ancestor.

John Tyler, the President, was the second son of the marriage of Judge John Tyler and Mary Armistead. His earlier education was obtained in an "old field school," taught by a tyrannical Scot named McMurdo, and the story is told that the future President, at the precocious age of 11, was one of the leaders in a rebellion of the pupils against their master. The dominie was an admirer of John Tyler, and when he saw him participating in the attempt of the boys to lock him up he exclaimed, after the manner of Scots dominies, "Et tu, Brute!" and surrendered. But his regard for the boy did not prevent Mr. McMurdo from reporting his son's conduct to Judge Tyler, who countered on the pedagogue's apt Latin quotation by another, since become scarcely less classic, and replied, "Sic semper tyrannis!"

In 1807 young Tyler graduated at William and Mary College, which, with its roster of statesmen and lawyers and soldiers, had long been a nursery of greatness. He then studied law for two years under Edmund Randolph, Secretary of State under Washington, and son-in-law of Robert Carter Nicholas, his father's distinguished law preceptor. His father had been a student at William and Mary when Mr. Jefferson was studying law in Williamsburg under the eminent jurist, George Wythe, and from him the son early imbibed, and continued to cherish and maintain throughout his life, the republican principles of Jeffersonian democracy. It was with him a fundamental tenet that the union of the States constituted in effect the concert of two nations, differing in institutions, in occupations, in religion, and in manners, each from the other, and that the only sure method of preventing separation or war was in the maintenance and preservation of the rights of the constituent States. This remained his political guiding star through his career, and by its light must that career be tested and judged. He held that the activities of the Federal Government should be kept in most things very far apart from those of the States; that they should be confined chiefly to those foreign relations that involved the action and conduct of a central power, while they interfered as little as possible with the internal and domestic affairs of the country.

Sprung from the struggle of antagonistic interests and passions, the Federal Constitution was full of trouble for the future, and it was the aggressive assertion of the national principle by the North in derogation of this principle held by Mr. Tyler that stirred the fires of nullification in 1832 and kindled the mighty conflagration of secession and war in 1861, which came near resulting in that permanent disruption which he apprehended and so long sought to avert.

It is in the profound recognition of this great fundamental characteristic of President Tyler's political creed that the key to his political history is to be found. Believing as he did in the basic idea that the union of North and South—a union that from the beginning was socially and economically incongruous—could only be maintained through State rights, Mr. Tyler was, as circumstances developed, first a Democratic-Republican, and when that party broke up, in 1824–1828, a State-Rights Democrat, and when the Jackson and Van Buren nationalists in the Democratic Party obtained control of it, and as a consequence the Whig Party was formed, a Whig, who agreed with the State-Rights Democrats on State rights and differed from nationalist Democrats on nationalism. After all is said, there was never for him a shadow of variableness or turning from the great doctrine of State rights, which was a very part of himself. His attitude was never a change of position, but a natural alignment with parties as they successively developed.

In 1809, two years before attaining his majority, the young graduate of William and Mary was admitted to the bar, and had already entered upon a good practice when, in 1811, he was elected to the general assembly. Here he was a firm supporter of Mr. Madison's election, and at an early stage of his service he became prominent as an eloquent and persuasive speaker. The question of the recharter of the Bank of the United States was a burning political issue of the times, as it continued to be for many years. William B. Giles and Richard Brent, the Senators from Virginia, ignored the instructions of the Virginia Legislature and favored in 1811 the recharter of the bank. In January, 1812, Mr. Tyler introduced a resolution censuring these Senators, taking then the two positions from which he never deviated, first, that the act creating the bank was in violation of the Federal Constitution; and, second, that the legislature of a State had the right to instruct its Senators in Congress, whose duty it was to obey such instructions or to resign.

It is not without interest to note that it was Mr. Benjamin Watkins Leigh who drew the instructions of the Virginia Legislature to the Senators and that Mr. Tyler was the author of its resolution of censure, for subsequent events growing out of these two resolutions serve to illustrate the latter's steady adherence to what he conceived to be a principle. When Benton offered his famous "expunging resolution" in the United States Senate Mr. Leigh and Mr. Tyler were Senators from Virginia. The Virginia Legislature instructed these Senators to support the "expunging resolution." Both refused to obey, but Mr. Tyler's refusal was accompanied by his resignation.

On the 20th of March, 1813, Mr. Tyler married Miss Letitia Christian, daughter of Robert Christian, of New Kent County, Va. "This marriage," it was said, "united the house of Democracy in the bridegroom and the house of Federalism in the bride"; but the new house was Democratic.

Robert Tyler, a son of this marriage, was distinguished as poet, politician, and orator. He was clerk of the Supreme Court of Pennsylvania and chairman of the Democratic Party in that State, register of the treasury of the Southern Confederacy, and at the time of his death, in 1877, was editor of the Montgomery Mail and Advertiser.

A few weeks after his marriage Mr. Tyler left his home at the head of a militia company to assist in the defense of Richmond, then threatened by the British; but his command was not called into action, and his military service was concluded after a month.

Mr. Tyler was reelected annually to the legislature until 1815, when he was elected a member of the executive council, and the next year, when a vacancy occurred in his congressional district, he was chosen for the unexpired term. He was again elected to Congress for two successive terms, and early in his career became conspicuous as a strict constructionist. He opposed Mr. Calhoun's bill for internal improvements by the Federal Government, on the grounds of unconstitutionality and of lack of uniform application; he antagonized the enactment of a national bankrupt law; and he made a great speech against the bank, and to the circulation of this speech in his district he attributed his first reelection to Congress without opposition.

His views on slavery were those of his father, who had voted in the convention of 1788 against the adoption of the Federal Constitution largely on the ground that it permitted the continuance of the slave trade. In the debates in Congress on the admission of Missouri he took strong position against any restriction of slavery in the new State, insisting with great vigor and power that, by the very terms of the Federal Constitution, the Territories should, when admitted, possess all the rights of the original States. He went further, and added, as Mr. Jefferson and Mr. Madison also thought, that it was unfair for the North, which had accomplished within its limits the emancipation and scattering of the slaves, to wall in Virginia's population, and thereby to confirm the continuance of slavery there. He was foremost and most persistent in his congressional course in holding that Congress had no constitutional power to legislate either for or against slavery in any Territory; and when the Missouri compromise measure was adopted, with its demarking line of 36 degrees 30 minutes, that seemed to Mr. Jefferson in his old age at Monticello, "like a fire bell in the night," Mr. Tyler cast his vote in the negative, with the profound and well-founded conviction, as against that of Mr. Clay and of Mr. Calhoun, that the compromise bill was an abject surrender of the whole situation.

But Mr. Tyler never changed his earliest judgment that a negro population was an evil, whether slave or free; and throughout his career he was a consistent opponent of the continuance of the slave trade, which his own State of Virginia had been the first constituted government in the world to prohibit in 1778.

In 1832, as a member of the Senate committee, he inserted in the code of laws, prepared by him for the District of Columbia, a provision prohibiting the use of the District as a slave mart. When President, he wrote in his message to Congress, June 1, 1841, that the highest consideration of public honor, as well as the strongest promptings of humanity, require a resort to the most vigorous efforts to suppress the trade; and again in his message of December 7, 1841, he invited the attention of Congress to existing laws for its suppression, and recommended such alterations as might give them greater force and efficiency. Later, in 1842, he personally secured[1] the insertion of a clause in the Ashburton treaty, providing for the maintenance and cooperation of British and American squadrons off the coast of Africa for the suppression of the trade, and urged the ratification of the treaty upon the Senate as conducive to the abolition of what he termed the "unlawful and inhuman traffic."

As to the abolition of slavery itself, he committed it to the operation of time, believing that if it could not be attained by the deportation of the negroes as contemplated by the African Colonization Society, of whose Virginia branch he was president in 1838, it would take place by some other means, and peaceably, if left free from organized assaults on the part of the Northern abolitionists. Indeed, an agency of this character, not duly recognized politically at the time, was the invention of the reaper by a Virginian, in Rockbridge County, Cyrus Hall McCormick. The phenomenal development of all kinds of agricultural machinery, of which this invention proved a stimulus, would probably have made slavery a burden upon the planter and have led to its final abolition.

In the first session of the Sixteenth Congress a protective tariff bill was for the first time passed by the House, but rejected by the Senate. Strict constructionists, like Mr. Tyler, believed that the sole power given by the Constitution to Congress in the fixing of tariffs was to provide thereby for the expenses of government and for the payment of the national debt; and that any arrangement of duties for the benefit of Northern manufacturers was one-sided and unfair and a usurpation of a power not granted or implied. To this tariff bill Mr. Tyler made the opening objections in an argument of great force, which created a deep impression, though it did not defeat the passage of the measure in the House.

In 1821, on account of failing health, Mr. Tyler resigned his seat in the House of Representatives and retired to private life. Two years later, however, he was again elected to the General Assembly of Virginia, and in the year following he was nominated for the United States Senate to fill a vacancy, but was defeated by Mr. Tazewell. In 1824 he opposed the attempted removal of William and Mary College to Richmond, and later became successively rector and chancellor of that venerable institution of learning, whose earlier services in the cause of education and scholarship, after an entire prostration by the War between the States, have been renewed in the able administration of his son, Dr. Lyon G. Tyler, its present president.

In December, 1825, Mr. Tyler was elected governor of Virginia by the legislature, which, down to the constitution of 1850, possessed the power of gubernatorial election. He was reelected governor for a second term by a unanimous vote; but before completing this term he was sent in 1827 to the United States Senate, over John Randolph, of Roanoke, by a combination of the Clay and Adams men in the legislature with the followers of William H. Crawford.

At this point, for a better understanding of Mr. Tyler's career, a brief retrospect is advisable. In 1816 the old Federalist party of Hamilton and John Adams was crushed and buried under the odium excited by its opposition to the War of 1812, and during Mr. Monroe's administration its ancient antagonist, the Democratic-Republican party of Jefferson, was the only political organization in the country. Toward the end of Monroe's term, in 1824, this party split into various factions, headed by Andrew Jackson, John Quincy Adams, William H. Crawford, and Henry Clay. Of these Crawford was a recognized strict constructionist and unequivocally opposed to the ideas then popular under the name of the American system, embracing internal improvements and a protective tariff. Mr. Tyler, along with Mr. Jefferson and the other Virginia leaders, favored Mr. Crawford as Monroe's successor, but he was soon retired from the race by a stroke of paralysis. None of the candidates receiving a majority vote of the electoral college, the election came before the House of Representatives, which selected Mr. Adams by a narrow majority of one State in a minority vote of the members. The strict constructionists were inclined to favor Mr. John Quincy Adams over either Clay or Jackson, who were too much committed to the American system.

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[1] See Mr. Tyler's letter in Letters and Times of the Tylers, II, p. 240; also p. 238.

The charge of a corrupt bargain at this time between Mr. Adams and Mr. Clay, characterized by the bitter tongue of John Randolph as the bargain of "Blifil and Black George, the Puritan and the Blackleg," was never credited by Mr. Tyler, but he found himself the object of a not dissimilar attack on the part of some of the Jackson men, upon his election soon after as Senator over Mr. Randolph, in the assertion that there must have been some secret and reprehensible understanding in the matter between him and Mr. Clay. There was no truth in the charge, as there is frequently no truth in personal political accusation; and Mr. Tyler believed that its object was to force him into some unnecessary statement or avowal, in favor of Jackson, which he refused to make. The scheme, if it was such, failed. But upon Mr. Adams taking a decided position in his messages for the American system, the Crawford strict constructionists, forced to what they regarded as a choice of evils, turned to Jackson, and joined in with his nationalist following. Mr. Tyler went along with the rest of the Crawford men, and voted for Jackson in the election of 1828. The factions of the Democratic-Republican Party crystallized into two new parties. The followers of Clay and John Quincy Adams took the name of National Republicans, and the followers of Jackson and Crawford that of Democrats. Neither party admitted any kinship with the defunct Federalist Party of Hamilton and John Adams. Both Randolph and Tyler, however, declined to become partisans of Jackson, and, while they both supported him in the canvass of 1832, they made of him on this occasion, as before, a choice of evils.

In 1829, while Senator, Mr. Tyler was elected a member of the famous Virginia Constitutional Convention of 1829–30, an assembly of which Mr. Ritchie wrote in his preface to its debates, and before many of its younger members had achieved their subsequent fame, that "some have held it equal to the celebrated convention which met in Virginia in the year 1788 to pass upon the Federal Constitution," and which numbered in its membership of 96, two ex-Presidents of the Union, the Chief Justice, and many men already distinguished on the bench and at the bar, and included others who were then yet to become Presidents, Senators, governors, members of presidential cabinets, ministers abroad, and members of the Supreme Court of the United States.

He returned from this body to his seat in the Senate, and found a further predilection for President Jackson in the latter's veto of the Maysville turnpike bill in 1830. But Jackson's antagonism to internal improvements was only directed against roads and did not apply to watercourses, and what was regarded by the strict constructionists as his unconstitutional usurpation of Executive powers in favoring appropriations for rivers and harbors, in making partisan removals, in approving the protective tariff of 1832, and in removing the deposits from the United States Bank, resulted in the complete alienation of the Crawford men.

Out of the political conflicts of the period emerged "the tariff of abominations" of 1828, and the protective tariff of 1832, carried through Congress by J. Q. Adams "in perfect concert with the administration"[1] and the "bloody Force bill," in 1833. To all of these measures Mr. Tyler was alike opposed. And while he did not favor nullification as a remedy for the tariff, he denounced Jackson's famous proclamation of December 10, 1832, against South Carolina as "sweeping away all the barriers of the Constitution," and as in effect "establishing a consolidated military despotism."

Jackson, with relentless determination, pursued his dictatorial way. A prominent Congressman of Virginia, who said to him that he had been his friend and supporter when he was right, but could not go with him when he was wrong, was met by the characteristic reply from the President that he did not care for the kind of friend and supporter who would stand by him only when he was right, but that the friends he desired were those who would stand by him when he was wrong.

Mr. Tyler, while opposed to the tariff, which on the admission of Mr. Dickerson, of New Jersey, made on the floor of the Senate, annually transferred from the South to the North $12,000,000, did not, as already stated, favor nullification; but when the ballot was taken on the Force bill, investing the President with extraordinary powers to enforce the obnoxious tariff, and when all the rest of the opposition left their seats, he remained, and his was the sole vote in the Senate recorded against it on its passage.

However, the danger of war and the almost certain attempted destruction of the Union that was threatened by the Force bill were obviated by the compromise tariff bill which Mr. Clay introduced into the Senate; and this bill in all respects was the work of Mr. Tyler. He suggested the details to Mr. Clay, prevailed upon him to offer it, and brought about a meeting of Mr. Clay with Mr. Calhoun, who agreed to support it.[2] Thus the Union was saved; for a blow struck at South Carolina at this time would have united the whole South, as it did in 1861, when that section was relatively much weaker. While the Force bill was pending, Mr. Tyler's term expired, and his reelection was contested by the able James McDowell, of Rockbridge, who was, however, defeated by him.

The excitement over these events had scarcely subsided when the passions of men were rekindled by Jackson's removal of the Federal deposits from the United States Bank. The Virginia Legislature, which until Jackson's proclamation in December, 1832, had supported his administration, was in opposition, and her delegation in Congress with practical unanimity determined in caucus in favor of the restoration of the deposits to the bank, while public opinion in the State became overwhelmingly anti-Jackson. In rebuke of the President's assumptions and arrogations to himself of what they deemed a violation of the law, Mr. Tyler and Mr. Clay worked enthusiastically with Mr. Calhoun and Mr. Webster in behalf of the Senate resolution of censure, which was adopted.

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[1] Niles Register, LXIII, p. 172.

[2] See Mr. Tyler's letter to John Floyd in William and Mary Quarterly Magazine, XXI, 8-10; and Letters and Times of the Tylers, I, 456-460, 466-467.

Then came the determined effort of Thomas H. Benton to have this censure expunged from the journal of the Senate. Virginia experienced another change of sentiment, and turned Jacksonian; and Mr. Tyler was instructed in 1836 to vote for the expunction. He declined and resigned from the Senate, having been honored by election as President pro tempore of that body at the close of the session of 1834–35.

Out of the ruck and turmoil of it all grew a great coalition of many men of many minds, that became the National Whig Party. Its parents were the antitariff men and strict constructionists largely located in the South, and Mr. Clay's National Republican Party who believed in the American system.

An analysis of the presidential votes in the years 1836 and 1840 demonstrates that the southern Whigs were drawn from the old Crawford element of the Democratic-Republican Party. Gathered about this formidable alliance were others who had been nullifiers and others who had been protectionists; while the anti-Masonic Party, that had grown up about the historic Masonic episode of Morgan, formed the rearguard of the potential though incongruous phalanx.

Thus, while some members of the new national Whig Party originally favored a protective tariff, others had fiercely opposed it; some had been for a United States Bank, and others against a bank of any kind; some had favored internal improvements by the national Government, and others had opposed, on the ground of unconstitutionality; and there were also some who continued nullifiers in the expectation of a future successful revival of the doctrine.

The generic appellation of "Whig" embraced all the heterogenous elements thus united, and their real single bond of union was opposition to Jackson and the Jacksonian Democracy. It was some years before the Whig Party attempted a formulation of principles and policies, for the obvious reason that in such an association there could be no agreement in any other thing than the one thing of making common cause against executive usurpation.

In the election of 1836 no common presidential candidate could be agreed upon by the Whigs. William Henry Harrison was the favorite candidate of the national Republican Whigs of the North, and Hugh L. White was the favorite of the State-rights Whigs of the South; but the Massachusetts Whigs voted for Webster, and the South Carolina Whigs voted for Willie P. Mangum. Mr. Tyler was placed upon the White ticket for Vice President, and in several States upon the Harrison ticket, but most of the Northern States supported Francis Granger. Under these circumstances, the Democrats had an easy victory, and no one of the Whig candidates was elected. "The doubel-shotted ticket killed us," wrote Mr. Tyler to Mr. Wise, after the election.

In 1838, Mr. Tyler was again sent to the State legislature, and, as the martyr to the expunging resolution, was at once placed by his friends in nomination for the United States Senate, but a small faction calling themselves "Conservatives," led by William C. Rives, who, because of the independent Treasury measure favored by Mr. Van Buren had severed relations with the Democratic Party, held the balance of power between the Whigs and Democrats and prevented his election. An intrigue set on foot by Mr. Clay, by which the majority of the Whig vote was finally cast for Mr. Rives, was in turn defeated by Mr. Tyler's particular friends, who were indignant at what they termed his betrayal by Mr. Clay, and the legislature adjourned without any election at this time.

Before it could reassemble the great Whig national convention assembled at Harrisburg, Pa., December 4, 1839, and nominated the party's first successful ticket, Harrison and Tyler, which was elected in the following year. The party made its nomination with a view to the success which it achieved, but, as is most significant, it promulgated no platform.

In the light of this anomalous fact, and of the former irreconcilable political ideas and interests of the various factions from which it sprung, are to be read the accusations that were made against Mr. Tyler by his enemies, when after the death of Gen. Harrison he succeeded to the office of President, April 4, 1841. To all such accusations of his having deserted Whig principles and the Whig Party during his administration it may be answered that his light had shone always as a beacon on a hill; that he was known of all men throughout his political career to have been a strict constructionist and State-rights advocate; that he was bound by no pledge of political doctrine, written or unwritten, to the incongruous party that elected him; and that he discharged the duties of his high office in the loftiest spirit of patriotism, and according to the profound and mature convictions that he had always entertained in regard to constitutional government.

During the presidential canvass of 1840, the course of the Whig orators in the North was to talk loudly of "reform," and to say nothing of the old issues of bank, tariff, and internal improvements. In the South, where the Whig constituencies were practically all for State rights, they were strong in their professions against these measures. And Mr. Clay's position was that all the old issues had become "obsolete" in the presence of the Federalism of the Jackson-Van Buren Democracy. Indeed, in a speech made in the Senate in September, 1841, Mr. Buchanan declared that "during the whole election campaign of 1840 he never saw one single resolution in favor of a national bank which had been passed by any Whig meeting in any part of the country."[1]

It is a notable fact that in this canvass Mr. Clay and many other prominent Whigs expressed in their speeches the very views which Mr. Tyler put into concrete effect in his vetoes of the bank bills and of the tariff bills, and it was for the first time, upon his veto of the fiscal corporation bill, that the Whig Members of Congress put forth, in their "Address to the people," a written declaration of what purported to be Whig purposes and policies; and declaring that the President had imperiled these Whig measures, proclaimed that "all political connection between them and John Tyler was at an end." This pronunciamento may be attributed solely to the party dominance of Mr. Clay and of the northern national Republican Whig influence in Congress

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[1] The Whig Party in the South, A. C. Cole (American Historical Association, Washington, 1913), pp. 29, 30, et seq., and authorities cited. Speech of Mr. Buchanan in Congressional Globe, appendix to Vol. X, p. 343.

Mr. Tyler took over the Harrison Cabinet and soon was called to confront the currency question. He had no confidence in any mere bank at this time as a remedy for the financial troubles in the country, but he naturally desired to gratify the Whig leaders, if possible. As he did not believe that Congress had power to create corporations in the States, he gave his Cabinet to understand that he would approve any bank for the District of Columbia, if accepted and established in good faith by the Whigs. Accordingly, Thomas Ewing, the Secretary of the Treasury, drew a bank bill for the District, which, though it contained features of local discounting that were objectionable to Mr. Tyler, had nothing actually unconstitutional about it. But when this bill, which was known as a measure to establish the fiscal bank of the United States, was proposed in Congress, Mr. Clay moved to substitute for the clause requiring the assent of the States to the creation of branches another clause authorizing the bank to establish branches without the consent of the States. The bill passed Congress and was vetoed by the President, and Mr. Ewing admitted that "the veto was in conformity with the President's opinions pertinaciously adhered to in all his conversations."

The attempt then was made to prepare another bill for what became known as the Fiscal Corporation of the United States, and on August 18, 1841, the President discussed its principal outlines in Cabinet. There was no written bill before them. At this meeting he authorized two of the Cabinet officers, Mr. Ewing and Mr. Webster, to confer with Messrs. Sergeant and Berrien, who represented the Whigs in the House of Representatives, about putting the bill in shape for Congress. Looking for ground to justify their desertion of the President, Ewing and two other members of the Cabinet afterwards asserted in their letters of resignation that this bill was drawn to conform to the President's ideas as outlined to them, and that he acted in bad faith in vetoing it—a charge that has been frequently repeated in partisan works. The baseless character of the charge is shown from a statement of the facts.

No evidence was ever produced that Mr. Tyler saw the bill before its introduction in Congress, though Mr. Ewing said that he "heard" that he had both seen and approved it. He afterwards gave the name of Mr. Webster as his informant. But Webster, though thus publicly mentioned, never substantiated him; but, on the contrary, declared in a published letter that "he had seen no sufficient reason for the dissolution of the late Cabinet by the voluntary act of its members." On the other hand, there is the emphatic denial of the President that he ever saw the bill till it appeared in Congress, and when told of its defects he tried in every way to have it properly amended. His memorable words were: "I declare under all the solemnities that can attend such a declaration that my consent to that bill was never obtained."

Neither is there any pretense of proof that Mr. Tyler was in any way committed to Congress or to any of its Members in favor of the bill, for the Cabinet members admitted that Ewing and Webster had been cautioned by the President at the Cabinet meeting "not to commit him" in their dealings with Messrs. Sergeant and Berrien. But the distinction is taken that the President, though not committed to anyone in Congress, was committed to his Cabinet as favoring the measure. Such a notion of the relations of a President to his Cabinet would seem to be a novel one. A President's advisers are supposed to be a part of the President's official identity, and one of the chief objects of a Cabinet meeting is to discuss matters with a view to maturing opinions. The acceptance of the idea that a President in Cabinet council must be held committed to any chance expression he might there let fall would be destructive of all confidence between him and his Cabinet members.

In this case the letters of resignation contain in themselves alone the strongest evidence that the President never for a moment committed his conscience to any man's keeping. According to the letter of resignation of John Bell, the Secretary of War, the President at the Cabinet meeting expressed "a wish to see the bill before it was presented to the House, if it could be so managed." Why should he have made this demand, if he had parted with his control over the bill? He told Mr. Webster and Mr. Ewing that they might express to the Whig committee "their confidence and belief that such a bill as had just been agreed upon would receive his sanction but it should be a matter of inference from his veto message and his general views." What could he mean by this, except that he wanted to be consistent with his action in the fiscal bank bill, and that he reserved the right of final judgment? How Webster regarded the matter is shown by his note of August 20 to the President, written after talking with Sergeant and Berrien, to whom he had gone in pursuance of the understanding at the Cabinet meeting: "I have done or said nothing as from you or by your authority or implicating you in the slightest degree. If any measure pass, you will be perfectly free to exercise your constitutional power wholly uncommitted, except so far as may be gathered from your public and official acts." This letter can not be reasonably regarded as consistent with the thought that the President in conscience was bound in any way to his Cabinet on the fiscal corporation bill.

The President himself shows that the principle of the fiscal corporation was as objectionable as the principle of the bill just vetoed. It was not reconcilable with his late veto or his other official acts. The fiscal corporation was a corporation created by Congress in its national character, and not a local bank of the District of Columbia created by Congress in its character as the local legislature of the District. It dealt ostensibly in exchanges, but admitted a system of local discounts, which he had condemned in his late veto message and at the Cabinet meeting. But whether a bank of local discount or an exchange bank, it lacked the fundamental feature of State assent as to branches.

Mr. Tyler states that he had suggested to the Cabinet not a national bank, but a local bank of the District of Columbia without the discounting power of the fiscal bank bill, either in its original shape as fashioned by Mr. Ewing, or as amended by Mr. Clay, and one confined to dealing in foreign exchanges. So far as the right of a local bank to deal in foreign exchanges was concerned, Mr. Tyler looked to the decision of the Supreme Court of the United States in the case of Bank of Augusta *v.* Earle (13 Peters' Reports, 510), which settled the principle that a bank of one sovereign country authorized to deal in exchanges might, by the comity of nations, establish agencies or branches for that purpose in another sovereign and independent country unless prohibited by its laws from so doing.

Such was the purport of his suggestions at the Cabinet meeting, and Mr. Tyler's account [1] of the matter tallies with the statement of one of the Whigs, Mr. A. H. H. Stuart, of Virginia, who admits that on August 16, two days before the Cabinet met, he brought a paper containing the clause in regard to branches to the President, who wrote upon the margin an amendment to meet the case in point. Under it the consent to branches might be taken as implied until forbidden by the State. This amendment differed in operation but not in principle from the original requirement as to branches in Ewing's bill. The difference in operation, occasioned by restricting the bill to exchanges, was a distinction founded on the law of nations, which law is itself founded on the consent of States; but the plan gave opportunity for the bank to establish branches more freely, and for this reason Mr. Tyler hoped that it would be pleasing to the Whig majority. Yet the Whigs seized upon Mr. Tyler's patriotic overture as an absolute surrender, and the fiscal corporation bill appeared in Congress without any limitation on the establishment of branches. Mr. Tyler tried to have the bill amended, and failing to effect this tried to have it postponed, but the Whigs, bent upon making an issue with Mr. Tyler before the people, ruthlessly pushed the measure, just as it was, to its passage. A second veto followed; all the Cabinet resigned except Mr. Webster, and the pronunciamento mentioned was issued. After all, the question between Mr. Tyler and the Whigs was not a mere one of bank and no bank, but the old one of centralization of power in Congress and State rights, of a consolidated nation and a confederated republic.

Despite the decadence of State rights, the fact enduring to this day is that Mr. Tyler saved the country from a vast moneyed trust, and Carl Schurz declares [2] that "the verdict of impartial history will probably be that John Tyler by preventing by his veto the incorporation of another United States bank rendered his country a valuable service." The plan of a United States bank in the old sense of the word, as a single gigantic private corporation, owning numerous affiliated banks in all the States and made the depositary and beneficiary of all the moneys of the Government, may safely be said to be a discarded thing forever.

Mr. Tyler, during the next two years, while the Whigs had a majority in Congress, received but slight support from that party, and was in little better case with the Democratic majority, dominated by the Van Buren influence, when that party succeeded in legislative superiority. He relied upon the wings of either party, who were, as he had always been, the supporters of State rights. After the resignation of the Harrison appointees, with the exception of Mr. Webster, who did not approve the conduct of the Whigs and ever remained the President's warm personal friend, he filled his Cabinet with State-rights Whigs, who, like himself, had voted for Harrison, and two years later he included in it several State-rights Democrats who were opposed to Van Buren.

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[1] For Mr. Tyler's own clear and conclusive account of the bank bills, see Letters and Times of the Tylers, II, 66–70; 98–102.

[2] Schurz, Henry Clay, II, 209 (American Statesmen Series).

The steadiness with which he met these varying conditions was matched by his firmness in sustaining the full dignity of his position. He did not regard himself as President by "accident" or "chance," or as "a Vice President acting as President," but as President by election and by the Constitution. As such he was recognized by both Houses of Congress. Nor, in his opinion, simply because his active functions were dependent upon the death of President Harrison, did that event, to use the slang phrase of the Whigs, make him an "accidental President" any more than was the then Queen of England, Victoria, an accidental monarch because her accession to the throne had been contingent on the death of her uncle, William IV. According to the Constitution, when the Vice President is elected it is for the very purpose of his succeeding to the office of President, and there is no room for "chance"; or, as Caleb Cushing, the eminent lawyer of Massachusetts, expressed it, the Vice President's succession is a "fixed fact" by the Constitution. By his determined and fortunate stand he preserved the Executive from a deplorable loss of power and authority and established the precedent that has been followed to this day.

In place of the vetoed bank bills, which his opponents vainly sought to pass over his veto, he drafted as a substitute the exchequer bill, which was declared[1] by Mr. Webster in its significance and importance to be only inferior to the Federal Constitution itself, and which in its character as a Government measure, with a board of control under the supervision of the Treasury Department, and in its provisions to issue Government notes and receive deposits, was a prototype[2] of the recently enacted Federal reserve act. When partisan politics occasioned the rejection of the exchequer by Congress, President Tyler for the remainder of his administration had the moneys of the Government in what was practically his own private keeping, and the country lost not one dollar.

After the currency question was disposed of, he had to confront, in 1842, the equally important, if not more important, one of the revenue. He inherited a bankrupt Treasury, which necessitated a public loan and a revision of the compromise tariff of 1833, and for floating the loan successfully he wished to pledge the net proceeds of the sales of the public lands. But the Whig Congress, under the leadership of Mr. Clay, insisted on giving this only immediately reliable fund to the States and attached a rider for this purpose to the new tariff bill, thus uniting in the same measure two diametrically opposite things—one having for its object putting money in and the other taking money from the Treasury. To effect a separation, the President had to resort, as in the bank affair, to two vetoes, and at length Congress passed, unencumbered with the rider, the Whig tariff of 1842, which, despite some objectionable protective features, the President approved as a revenue measure demanded by the exigencies of the Treasury. Nor did it disappoint his expectations, as it speedily filled the empty Treasury to overflowing.

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[1] In his Faneuil Hall speech, Sept. 30, 1842.

[2] The connection was noted by Senator N. W. Aldrich, of Rhode Island, in a recent speech.

The disapproval of the people of the conduct of the Whigs was registered in the fall elections of 1842. The Whig Party was swept from power, and two years later, when Mr. Clay was the Whig candidate for the Presidency, he was defeated.

The confusion and clamor of these earlier political struggles have long since passed away, and in the retrospective of history men have come to see clearly the truths that have emerged from them. Of these truths there is now none more salient and conspicuous than that those who charged Mr. Tyler with recreancy to the Whig Party and its principles bore false witness against him. As has been said of him: "It was impossible in the nature of things for a party composed of so many discordant and opposing elements to have any well-defined principles or determinate policy; and it was perfectly understood in the Harrisburg convention, which nominated Harrison and Tyler, that Mr. Tyler was put on the ticket, as well on account of his great popularity throughout the country, as for his well-known antibank, antitariff, strict constructionist, State rights and anti-internal improvement views and principles." As Gen. Wise truly says: "He did not commit himself to a Federal Party or Federal opinions by accepting the nomination, but the Whig Party committed itself to Democratic principles, and selected a Democrat to guard them."

At the time of the accession of Mr. Tyler to the Presidency, the diplomacy of England apparently contemplated an absorption of that section of the American Continent that lay west of the Mississippi River—a territory which comprised Texas, Colorado, New Mexico, Arizona, Idaho, Montana, Wyoming, Nevada, California, Oregon, and Washington—and which was claimed by Mexico, but uncontrolled by her authority. From this situation grew the Ashburton treaty with Great Britain, negotiated, as Mr. Webster himself says,[1] "from step to step and from day to day under the President's own immediate supervision and direction," everything being first agreed upon in informal conferences and afterwards reduced to writing and submitted to him for his final corrections.[2] And out of the same conditions also grew his successful procurement of the independence of the Sandwich Islands, now an important dependency of the United States. Mr. Tyler applied the Monroe doctrine to these islands as part of this continent, and thus in being the first President to reach out to them the protecting arm of this Government led the way to their ultimate acquisition under President McKinley.

But the most far-reaching question of this diplomacy of Great Britain and the United States related to Texas and California. As early as 1841 Mr. Tyler had pointed out to Mr. Webster the significance to the United States of the ultimate acquisition of Texas, and this idea continued persistently with him, until its consummation was finally achieved and the joint resolution of the two Houses of Congress providing for annexation was adopted and signed by him on the last day of his term of office. That this great purpose was very near his heart, and that its ultimate accomplishment afforded him much satisfaction, is indicated in a letter to Mr. Alexander Gardiner, in which he wrote, on the eve of his retirement from the Presidency: "We shall leave the Government and country sound and prosperous; and if the annexation of Texas shall crown off my public life, I shall neither retire ignominiously nor be soon forgotten."

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[1] Daniel Webster to Lewis Cass (Niles, Register, LXIV, p. 79).

[2] Letters and Times of the Tylers, II, 242; III, 205-206.

Whatever the views of other southern men, he took from the first, as to Texas, the broad ground of the national good—the monopoly of the cotton plant, the growth of the coastwise and foreign traffic, and the extension of the national domain. And that in all the manifold circumstances which marked the development and accomplishment of the great measure of annexation his motives and conduct were of a high and noble character is confirmed by Dr. Justin H. Smith, of Boston, who, in his recent work, The Annexation of Texas (1911), has subjected the whole question to the most thorough and painstaking investigation. In his summary of the actions and motives of men, North and South, both for and against the measure, Dr. Smith declares that "among the leaders, Tyler, the unpopular, comes out rather the best, as so often occurs when conduct and principles are closely examined." By resorting to joint resolutions of Congress for the annexation of Texas, he again furnished a precedent to our own times. Although this method of annexation was strongly denounced as unconstitutional, especially in the North, it was later resorted to by Mr. McKinley, a northern President, in effecting the annexation of the Sandwich or Hawaiian Islands.

Among the other achievements of his administration were the suppression of Dorr's insurrection in Rhode Island, the settlement of the difficulties with Great Britain in the cases of the *Caroline* and *Creole*, the reduction of the Danish Sound dues (the first reduction ever made of the Danish tariff of 1696), and the conclusion of the Seminole War in Florida; and of the unfinished measures turned over to Mr. Polk, his successor, were the Oregon boundary and the acquisition of California and New Mexico, which questions, by a brilliant stroke of diplomacy, he sought informally to join under a tripartite arrangement between Great Britain, Mexico, and the United States,[1] and the successful conclusion of which, had his term of office permitted it, might have saved the country from the war with Mexico, and from the consequent struggles over slavery. As to his treatment of the Rhode Island question, Mr. Webster asserted that "it was worthy of all praise and one of the most fortunate incidents in your (Tyler's) administration for your own reputation."

Great as was his constructive statesmanship in his "Exchequer" proposition, in his diplomacy as illustrated in the treaties negotiated with Great Britain and with China,[2] and in his acquisition to the Union of the imperial domain of Texas, it is no less creditable to his administrative capacity and experience that he could truthfully proclaim as he worte to Mr. Gardiner, "That he left the Government sound and prosperous." When his term expired, there was a balance in the Federal Treasury of eight million dollars, and it is said that but one defaulter had been discovered during his presidential term, and he for the paltry sum of $15; while the expenses of Government were reduced one-fourth, as compared with those of the preceding administration. Mr. Webster paid him the tribute of saying[1] "that in all things respecting the expenditures of the public moneys he was remarkably cautious, exact, and particular."

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[1] Letters and Times of the Tylers, II, 260, 447–449, 692; III, 176 (Letter of Ben. E. Green).

[2] It is not generally known that when Mr. Cushing was sent to China he was given authority to treat also with Japan. See letter of Mr. Tyler in Letters and Times of the Tylers, II, 200–201.

And yet no public interest was neglected. The Navy Department, hitherto chiefly conspicuous for its chaotic conditions, was organized into bureaus with a veteran commander at the head of each. The naval force was augmented by two new squadrons, the Home and the African squadrons. The Naval Observatory was established with the eminent Virginia scientist, Matthew F. Maury, at its head, and the first steps were taken toward the founding of the United States Naval Academy. Increased efficiency was imparted to the Army, and the fortifications at Old Point and other places, which Mr. Tyler received in an almost dismantled condition, bristled when he left the Government with guns and military equipment. He filled the important posts abroad with men like Everett, Wheaton, Irving, Thompson, Cushing, and Payne, distinguished for ability and love of literature. He threw the influence of his office in favor of Morse and his telegraph, sent Frémont to discover the best path over the western plains and through the mountains to Oregon, and encouraged the caravans of immigrants under Elijah White and others, who went to make their homes on the distant waters of the Columbia River.

He had married, as his second wife, in June, 1844, Miss Julia Gardiner, daughter of Hon. David and Juliana Gardiner, of Long Island, N. Y., who was the mother of his two still living sons, the Hon. David Gardiner Tyler, ex-Congressman and present circuit judge, and Dr. Lyon G. Tyler, the distinguished scholar and historian, and present president, since 1888, of the ancient College of William and Mary. His second wife lies buried by his side beneath this monument.

After leaving the White House Mr. Tyler went to live on an estate in Charles City County, 3 miles from "Greenway," his father's old home and his own birthplace, and to his new residence he gave the name of "Sherwood Forest." Here he continued to dwell for the rest of his life, ceasing to take an active part in politics, but even in his retirement exercising a potent influence on public opinion in Virginia. During this time he was in much demand for lectures and addresses, and in 1857 he was the orator at the celebration of the two hundredth and fiftieth anniversary of the settlement at Jamestown. Old enmities died away, and he acquired much of his former great popularity in Virginia and in other States.

The growth of the nationalist principle in the North, as evidenced by the rise of the Republican Party in 1856, brought the country face to face with the dire results which Mr. Tyler had always apprehended. The two nations constituting the Union grew more and more unlike and to the social, industrial, and economic differences formerly existing were added violent sectional distrust and enmity. The election of Lincoln, a northern man, by Northern States and upon a platform which, in defiance of a recent decision of the Supreme Court, denied the right of a southern man to go with his slaves into any of the territories secured by the common blood and the common treasure, was construed by the Southern States as a northern monopoly of political and economic power. Deeming the Union under all these circumstances, to have become a positive failure, and asserting the natural right to independence, based on the vast extent of their southern territory, and a population three times as great as that of the original colonies, they appealed to the words of the Declaration of Independence and to their reserved rights under the Constitution, and prepared for peaceable separation.

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[1] Curtis, Life of Daniel Webster, II, p. 275.

In this emergency Mr. Tyler, who had a sincere attachment to the Union of the Fathers, repeated the part which he had played in 1833. He tried to save the Union by peaceful means, but was unsuccessful. Upon the secession of South Carolina, after Mr. Lincoln's election, his counsel and advice were sought by his people, and he was elected to the State Convention which met in Richmond February 13, 1861. He was sent as peace commissioner to President Buchanan, and it was due to his patriotic efforts that the peace convention, of which he was chosen president, and whose purpose was to preserve the Union, was called to meet in Washington February 4, 1861. The result of the deliberations of this conference took shape in an ambiguous proposition, which Mr. Tyler opposed, and which the Republican Congress rejected. Realizing after this that all compromise was impossible, Mr. Tyler advocated the secession of Virginia, and on the 17th of April, 1861, was elected a delegate to the Provisional Congress of the Confederate States, and was an active member of that body in Richmond. In the November following he was elected a member of the Confederate House of Representatives, but died on January 18, 1862, before taking his seat in the latter body.

During the period that he lived after the beginning of the War between the States, he suggested the system of gunboats devised for the Confederacy; and Commodore Matthew F. Maury, who mentions this fact, pays him the tribute of stating that his death was the heaviest blow sustained by the Confederate States during the first year of the war.[1]

Time would fail for the rehearsal here of the opinions expressed of him by men of distinction and renown. Mr. Davis said of him that "he was the most felicitous among the orators he had known;" Alexander H. Stevens said that "his State papers compared favorably in point of ability with those of any of his predecessors;" and Daniel Webster and Henry S. Foote and Henry A. Wise and George Ticknor Curtis and R. M. T. Hunter, and a host of other great men bestowed upon him the expressions of their admiration, respect, and regard.

Concerning his general appearance, we have the report of the novelist, Charles Dickens. Recording in his American Notes an account of a visit to the White House in 1842, he wrote of "his mild and pleasant expression" and of his "remarkably unaffected, gentlemanly, and agreeable manners," and added that he thought that "in his whole carriage and demeanor he became his station singularly well." That he was a man of fine literary accomplishments is shown not only by his messages and private letters but by his beautiful and eloquent addresses, among which may be mentioned his oration on the death of Jefferson, in 1826, his lecture at the Maryland Mechanics' Institute in 1855, and his discourse on the "Dead of the Cabinet," in 1856, in which he pays a tender tribute to Webster, Calhoun,

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[1] Official Record of the Union and Confederate Navies, Series I, vol. 6, p. 633.

Legaré, Upshur, Gilmer, Spencer, and Wickliffe, his able associates in the conduct of the Government of the United States.

He was buried in Hollywood Cemetery, where a large concourse gathered to testify their pride in his greatness and their sorrow for his departure; and in his funeral obsequies city and State and Confederacy alike took part.

And now the Federal Government has erected this monument over his mortal body; but the significance of the act does not lie in the cost or the beauty of the monument itself. Its erection is unique in that it is the first monument to be voted by the Federal Congress to any man whose sense of duty impelled him to take sides with the South in the stormy days of secession. Viewed in this light, this memorial shaft to John Tyler is the most impressive and significant of all memorial structures in the United States, for it is the first in which both North and South have freely joined, and it stands to the world as the sign and pledge of a reunited country, and a testimony that the passions of the past have perished.

John Tyler, statesman and patriot, needs no eulogy. The austere epitome of his life and deeds can convey but an inadequate conception of his courage, his ability, his steadfastness, and his patriotic devotion to country. His dust reposes here beneath this monument, and on the page of history his fame itself is monumental. His name has been placed there, alongside those of the great leaders of our epic story—of Jefferson and Madison, of Calhoun and Davis—and as long as the records of the Republic shall endure he will be remembered and honored as one of its most illustrious sons.

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64TH CONGRESS
1st Session
SENATE
DOCUMENT
No. 260

NATIONAL PREPAREDNESS

ADDRESS

DELIVERED BEFORE THE RAILROAD BUSINESS
ASSOCIATION OF NEW YORK CITY
ON JANUARY 27, 1916

By

HON. WOODROW WILSON
PRESIDENT OF THE UNITED STATES

PRESENTED BY MR. CHILTON
JANUARY 27, 1916.—Ordered to be printed

WASHINGTON
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1916

NATIONAL PREPAREDNESS.

New York, *January 27, 1916.*

Mr. Toastmaster, Ladies, and Gentlemen: The exactions of my official duties have recently been so great that it has been very seldom indeed that I could give myself so great a pleasure as that which I am enjoying to-night. It is a great pleasure to come and be greeted in such generous fashion by men so thoughtful as yourselves and so deeply engaged in some of the most important undertakings of the Nation, and I consider it a privilege to be permitted to lay before you some of the things to which we ought to give our most careful and deliberate consideration.

The question, it seems to me, which most demands clarification just now is the question to which your toastmaster has referred, the question of preparation for national defense. I say that it stands in need of clarification because it has been deeply clouded by passion and prejudice. It is very singular that a question the elements of which are so simple and so obvious should have been so beclouded by the discussion of men of high motive, men of purpose as handsome as any of us may claim and yet apparently incapable of divesting themselves of that sort of provincialism which consists in thinking the contents of their own mind to be the contents of the mind of the world. For, gentlemen, while America is a very great Nation, while America contains every element of fine force and accomplishment, America does not constitute the major part of the world. We live in a world which we did not make, which we can not alter, which we can not think into a different condition from that which actually exists. It would be a hopeless piece of provincialism to suppose that because we think differently from the rest of the world we are at liberty to assume that the rest of the world will permit us to enjoy that thought without disturbance.

It is a surprising circumstance, also, that men should allow partisan feeling or personal ambition to creep into the discussion of this fundamental thing. How can Americans differ about the safety of America? I, for my part, am ambitious that America should do a greater and more difficult thing than the great nations on the other side of the water have done. In all the belligerent countries men without distinction of party have drawn together to accomplish a successful prosecution of the war. Is it not a more difficult and a more desirable thing that all Americans should put partisan prepossessions aside and draw together for the successful prosecution of peace? I covet that distinction for America; and I believe that America is going to enjoy that distinction. Only the other day the leader of the Republican minority in the House of Representatives delivered a speech which showed that he was ready and, I take it for granted, that the men behind him were ready, to forget party lines in order that all men may act with a common mind and impulse for the service of the country; and I want upon this first public occasion to pay my tribute of respect and obligation to him.

I find it very hard indeed to approach this subject without very deep emotion, gentlemen, because when we speak of America and the things that are to be conserved in her, does it not call a wonderful picture into your mind? America is young still; she is not yet even in the heydey of her development and power. Think of the great treasures of youth and energy and ideal purpose still to be drawn from the deep sources from which this Nation has always drawn its life. Think of the service which those forces can and must render to the rest of the world. Think of the position into which America has been drawn, almost in spite of herself, by the circumstances of the present day. She alone is free to help find things wherever they show themselves in the world. She will be forced also, whether she will or not, in the decades immediately ahead of us, to furnish the world with its chief economic guidance and assistance.

It is very fine to remember what ideals will be back of that assistance. Economic assistance in itself is not necessarily handsome. It is a legitimate thing to make money, but it is not an ideal thing to make money. Money brings with it power which may be well or ill employed, and it should be the pride of America always to employ her money to the highest purpose. Yet if we are drawn into the maelstrom that now surges across the water, swirls alike in the western and eastern regions of the world, we shall not be permitted to keep a free hand to do the high things that we intend to do. It is necessary, therefore, that we should examine ourselves and see whether we can make certain that the tasks imposed upon us will be performed, well performed, and performed without interruption.

America has been reluctant to match her wits with the rest of the world. When I face a body of men like this it is almost incredible to remember that only yesterday they were afraid to put their wits into free competition with the world. The best brains in the world afraid to match brains with the rest of the world. We have preferred to be provincial. We have preferred to stand behind protecting devices. And now, whether we will or no, we are thrust out to do on a scale never dreamed of by recent generations in America the business of the world. We can not any longer be a provincial Nation.

Let no man dare to say, if he would speak the truth, that the question of preparation for national defense is a question of war or of peace. If there is one passion more deep-seated in the hearts of our fellow countrymen than another, it is the passion for peace. No nation in the world ever more instinctively turned away from the thought of war than this Nation to which we belong. Partly because in the plenitude of its power, in the unrestricted area of its opportunities, it has found nothing to covet in the possession and power of other nations. There is no spirit of aggrandizement in America. There is no desire on the part of any thoughtful and conscientious American man to take one foot of territory from any other nation in the world. I myself share to the bottom of my heart that profound love for peace. I have sought to maintain peace against very great and sometimes very unfair odds. I have had many a time to use every power that was in me to prevent such a catastrophe as war coming upon this country. It is not permissible for any man to say that anxiety for the defense of the Nation has in it the least tinge of desire for a power that can be used to bring on war.

But, gentlemen, there is something that the American people love better than they love peace. They love the principles upon which their political life is founded. They are ready at any time to fight for the vindication of their character and of their honor. They will not at any time seek the contest, but they will at no time cravenly avoid it; because if there is one thing that the individual ought to fight for, and that the Nation ought to fight for, it is the integrity of its own convictions. We can not surrender our convictions. I would rather surrender territory than surrender those ideals which are the staff of life of the soul itself.

And because we hold certain ideals we have thought that it was right that we should hold them for others as well as for ourselves. America has more than once given evidence of the generosity and disinterestedness of its love of liberty. It has been willing to fight for the liberty of others as well as for its own liberty. The world sneered when we set out upon the liberation of Cuba, but the world sneers no longer. The world now knows, what it was then loath to believe, that a nation can sacrifice its own interests and its own blood for the sake of the liberty and happiness of another people. Whether by one process or another, we have made ourselves in some sort the champions of free government and national sovereignty in both continents of this hemisphere; so that there are certain obligations which every American knows that we have undertaken.

The first and primary obligation is the maintenance of the integrity of our own sovereignty. That goes as of course. There is also the maintenance of our liberty to develop our political institutions without hindrance; and, last of all, there is the determination and the obligation to stand as the strong brother of all those in this hemisphere who mean to maintain the same principles and follow the same ideals of liberty.

May I venture to insert here a parenthesis? Have any of you thought of this? We have slowly, very slowly indeed, begun to win the confidence of the other States of the American hemisphere. If we should go into Mexico, do you not know what would happen? All the sympthies of the rest of America would look across the water and not northward to the great Republic which we profess to represent; and do you not see the consequences that would ensue in every international relation? Have gentlemen who have rushed down to Washington to insist that we should go into Mexico reflected upon the politics of the world? Nobody seriously supposes, gentlemen, that the United States needs to fear an invasion of its own territory. What America has to fear, if she has anything to fear, are indirect, round-about, flank movements upon her regnant position in the Western Hemisphere. Are we going to open those gates, or are we going to close them? For they are the gates to the hearts of our American friends to the south of us and not gates to the ports merely. Win their spirits and you have won the only sort of leadership and the only sort of safety that America covets. We must all of us think from this time out in terms of the world, and must learn what it is that America has set out to maintain as a standard bearer for all those who love liberty and justice and righteousness in political action.

But, gentlemen, we must find means to do this thing which are suitable to the time and suitable to our own ideals. Suitable to the time—does anybody understand the time? Perhaps when you learned, as I dare say you did learn beforehand, that I was expecting to address you on the subject of preparedness, you recalled the address which I made to Congress something more than a year ago, in which I said that this question of military preparedness was not a pressing question. But more than a year has gone by since then and I would be ashamed if I had not learned something in 14 months. The minute I stop changing my mind with the change of all the circumstances of the world, I will be a back number.

There is another thing about which I have changed my mind. A year ago I was not in favor of a tariff board, and I will tell you why. Then the only purpose of a tariff board was to keep alive an unprofitable controversy. If you set up any board of inquiry whose purpose it is to keep business disturbed and to make it always an open question what you are going to do about the public policy of the Government, I am opposed to it; and the very men who were dinning it into our ears that what business wanted was to be let alone were, many of them, men who were insisting that we should stir up a controversy which meant that we could not let business alone. There is a great deal more opinion vocal in this world than is consistent with logic. But the circumstances of the present time are these: There is going on in the world under our eyes an economic revolution. No man understands that revolution; no man has the elements of it clearly in his mind. No part of the business of legislation with regard to international trade can be undertaken until we do understand it; and Members of Congress are too busy, their duties are too multifarious and distracting to make it possible within a sufficiently short space of time for them to master the change that is coming.

I hear a great many things predicted about the end of the war; but I do not know what is going to happen at the end of the war; and neither do you. There are two diametrically opposed views as to immigration. Some men tell us that at least a million men are going to leave the country and others tell us that many millions are going to rush into it. Neither party knows what they are talking about, and I am one of those prudent individuals who would really like to know the facts before he forms an opinion; not out of wisdom but out of prudence. I have lived long enough to know that if I do not, the facts will get away with me. I have come to have a great and wholesome respect for the facts. I have had to yield to them sometimes before I saw them coming and that has led me to keep a weather eye open in order that I may see them coming. There is so much to understand that we have not the data to comprehend that I for one would not dare, so far as my advice is concerned, to leave the Government without the adequate means of inquiry—but that is another parenthesis.

What I am trying to impress upon you now is that the circumstances of the world to-day are not what they were yesterday. or ever were in any of our yesterdays. And it is not certain what they will be to-morrow. I can not tell you what the international relations of this country will be to-morrow, and I use the word literally; and I would not dare keep silent and let the country suppose that to-morrow was certain to be as bright as to-day. America will never be the aggressor, America will always seek to the last point at which her honor is involved to avoid the things which disturb the peace of the world; but America does not control the circumstances of the world, and we must be sure that we are faithful servants of those things which we love, and are ready to defend them against every contingency that may affect or impair them.

And, as I was saying a moment ago, we must seek the means which are consistent with the principles of our lives. It goes without saying, though apparently it is necessary to say it to some excited persons, that one thing that this country never will endure is a system that can be called militarism. But militarism consists in this, gentlemen: It consists in preparing a great machine whose only use is for war and giving it no use upon which to expend itself. Men who are in charge of edged tools and bidden to prepare them for exact and scientific use grow very impatient if they are not permitted to use them, and I do not believe that the creation of such an instrument is an insurance of peace. I believe that it involves the danger of all the impulses that skillful persons have to use the things that they know how to use.

But we do not have to do that. America is always going to use her Army in two ways. She is going to use it for the purposes of peace, and she is going to use it as a nucleus for expansion into those things which she does believe in, namely, the preparation of her citizens to take care of themselves. There are two sides to the question of preparation; there is not merely the military side, there is the industrial side; and the ideal which I have in mind is this: We ought to have in this country a great system of industrial and vocational education under Federal guidance and with Federal aid, in which a very large percentage of the youth of this country will be given training in the skillful use and application of the principles of science in manufacture and business; and it will be perfectly feasible and highly desirable to add to that and combine with it such a training in the mechanism and care and use of arms, in the sanitation of camps, in the simpler forms of maneuver and organization, as will make these same men at one and the same time industrially efficient and immediately serviceable for national defense. The point about such a system will be that its emphasis will lie on the industrial and civil side of life, and that, like all the rest of America, the use of force will only be in the background and as the last resort. Men will think first of their families and their daily work, of their service in the economic ranks of the country, of their efficiency as artisans, and only last of all of their serviceability to the Nation as soldiers and men at arms. That is the ideal of America.

But, gentlemen, you can not create such a system overnight; you can not create such a system rapidly. It has got to be built up, and I hope it will be built up, by slow and effective stages; and there is much to be done in the meantime. We must see to it that a sufficient body of citizens is given the kind of training which will make them efficient now if called into the field in case of necessity. It is discreditable to this country, gentlemen, for this is a country full of intelligent men, that we should have exhibited to the world the example we have sometimes exhibited to it, of stupid and brutal waste of force. Think of asking men who can be easily trained to come into the field, crude, ignorant, inexperienced, and merely furnishing the stuff for camp fever and the bullets of the enemy. The sanitary experience of our Army in the Spanish-American War was merely an indictment of America's indifference to the manifest lessons of experience in the matter of ordinary, careful preparation. We have got the men to waste, but God forbid that we should waste them. Men who go as efficient instruments of national honor into the field afford a very handsome spectacle indeed. Men who go in crude and ignorant boys only indict those in authority for stupidity and neglect. So it seems to me that it is our manifest duty to have a proper citizen reserve.

I am not forgetting our National Guard. I have had the privilege of being governor of one of our great States, and there I was brought into association with what I am glad to believe is one of the most efficient portions of the National Guard of the Nation. I learned to admire the men, to respect the officers, and to believe in the National Guard; and I believe that it is the duty of Congress to do very much more for the National Guard than it has ever done heretofore. I believe that that great arm of our national defense should be built up and encouraged to the utmost; but, you know, gentlemen, that under the Constitution of the United States the National Guard is under the direction of more than twoscore States; that it is not permitted to the National Government directly to have a voice in its development and organization; and that only upon occasion of actual invasion has the President of the United States the right to ask those men to leave their respective States. I, for my part, am afraid, though some gentlemen differ with me, that there is no way in which that force can be made a direct resource as a national reserve under national authority.

What we need is a body of men trained in association with units of the Army, a body of men organized under the immediate direction of the national authority, a body of men subject to the immediate call to arms of the national authority, and yet men not put into the ranks of the Regular Army; men left to their tasks of civil life, men supplied with equipment and training, but not drawn away from the peaceful pursuits which have made America great and must keep her great. I am not a partisan of any one plan. I have had too much experience to think that it is right to say that the plan that I propose is the only plan that will work, because I have a shrewd suspicion that there may be other plans that will work. What I am after, and what every American ought to insist upon, is a body of at least half a million trained citizens who will serve under conditions of danger as an immediately available national reserve.

I am not saying anything about the Navy to-night, because for some reason there is not the same controversy about the Navy that there is about the Army. The Navy is obvious and easily understood; the Army apparently is very difficult to comprehend and understand. We have a traditional prejudice against armies which makes us stop thinking calmly the minute we begin talking about them. We suppose that all armies are alike and that there can not be an American Army system, that it must be a European system, and that is what I for one am trying to divest my own mind of. The Navy is so obvious an instrument of national defense that I believe that, with differences of opinion about the detail, it is not going to be difficult to carry out a proper and reasonable program for the increase of the Navy.

But that is another story; my theme to-night is national defense on land where we seem most negligent of it. And I do not want to leave in your minds the impression that I have any anxiety as to the outcome, for I have not the slightest. There is only one way for parties and individuals to win the confidence of this Nation and that is by doing the things that ought to be done. Nobody is going to be deceived. Speeches are not going to win elections. The facts are going to speak for themselves and speak louder than anybody who controverts them. No political party, no group of men, can afford to disappoint America. This is a year of political accounting, and the Americans in politics are rather expert accountants. They know what the books contain and they are not going to be deceived about them. No man is going to hide behind any excuse; the goods must be delivered or the confidence will not be enjoyed. For my part, I hope that every man in public life will get what is coming to him.

If this is true, gentlemen, it is because of things that lie much deeper than laughter, much deeper than cheers; lie down at the very roots of our life. America refuses to be deceived about the things that most concern her national honor and national safety, that lie at the foundation of everything that you love. It is the solemn time when men must examine not only their purposes but their hearts. Men must purge themselves of individual ambition, and must see to it that they are ready for the utmost self-sacrifice in the interests of the common welfare. Let no man dare play the marplot. Let no man dare bring partisan passion into these great things. Let men honestly debate the facts and courageously act upon them. Then there will come that day when the world will say, "This America that we thought was full of a multitude of contrary counsels now speaks with the great volume of the heart's accord, and that great heart of America has behind it the supreme moral force of righteousness and hope and the liberty of mankind."

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64TH CONGRESS, 1st Session. | SENATE. | DOCUMENT No. 261.

ARMY POSTS.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

IN RESPONSE TO A SENATE RESOLUTION OF THE 6TH INSTANT, DETAILED INFORMATION WITH REFERENCE TO ARMY POSTS IN THE UNITED STATES AS A PARTIAL COMPLIANCE WITH THE RESOLUTION.

JANUARY 28, 1916.—Ordered to be printed.

WAR DEPARTMENT,
Washington, January 27, 1916.

Hon. JAMES M. BAKER,
Secretary Senate of the United States,
Washington, D. C.

DEAR SIR: Referring to resolution by the Senate of the 6th instant, that the Secretary of War furnish to the Senate, if not incompatible with the public interests, certain information with reference to Army posts in the United States, I have the honor to transmit herewith detailed information covering the first four items of the information requested. As to the fifth and sixth items, I am not now prepared to make specific recommendations on this subject, as the passage of any of the bills now before Congress looking to an increase in the Military Establishment would probably require the use of all Army posts now available.

Very sincerely,

LINDLEY M. GARRISON,
Secretary of War.

Statement showing the use now being made of each Army post and the use that has been made during each year of their existence for the last 10 years.

Name of post.	Capacity.	How occupied now.	How occupied during each of last 10 years.
Adams, Fort, R. I.	5 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Andrews, Fort, Mass.	4 companies Coast Artillery.	do	Do.
Apache, Fort, Ariz.	6 troops Cavalry	By Cavalry	By Cavalry.
Armistead, Fort, Md.	18 men	By detachment of Coast Artillery (subpost of Fort Howard, Md.).	By detachment of Coast Artillery.
Army and Navy General Hospital, Hot Springs, Ark.	185 patients	As hospital for officers and enlisted men of Army and Navy.	Same for past 10 years.
Baker, Fort, Cal.	3 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Banks, Fort, Mass.	2 companies Coast Artillery.	do	Do.
Barrancas, Fort, Cal.	4 companies Coast Artillery.	do	Do.
Bayard, Fort, General Hospital, N. Mex.	432 patients	As a hospital for officers and enlisted men of the Army.	Same for past 10 years.
Benicia Barracks, Cal.		Ungarrisoned	By Signal Corps in 1906, 1907, and 1908. Since ungarrisoned.
Benjamin Harrison, Fort, Ind.	1 regiment Infantry	By detachment of Infantry.	By Infantry since 1908, inclusive. Post completed in 1907.
Bliss, Fort, Tex.	1 regiment Cavalry	By Cavalry	By Infantry 1906 to 1911, inclusive; by Infantry, Cavalry, Signal Corps, and Field Artillery in 1912, 1913, and 1914; by Cavalry and Signal Corps in 1915.
Boise Barracks, Idaho.	1 squadron Cavalry	Ungarrisoned	By Cavalry 1906 to 1912, inclusive.
Brady, Fort, Mich.	4 companies Infantry	By detachment of Infantry.	By Infantry.
Canby, Fort, Wash.	15 men	By detachment of Coast Artillery (subpost of Fort Stevens, Oreg.).	By detachment of Coast Artillery from 1910 to date.
Carroll, Fort, Md.	20 men	By detachment of Coast Artillery (subpost of Fort Howard, Md.).	By detachment of Coast Artillery.
Casey, Fort, Wash.	3 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Caswell, Fort, N. C.	do	do	Do.
Clark, Fort, Tex.	10 troops Cavalry	By Cavalry	By Cavalry from 1906 to 1915, inclusive, except 1910 and 1911, when it was occupied by Infantry.
Columbia, Fort, Wash.	1 company Coast Artillery.	By Coast Artillery	By Coast Artillery.
Columbus Barracks, Ohio.	1,659 men	As recruit depot	As recruit depot.
Constitution, Fort, N. H.	1 company Coast Artillery (old frame buildings in bad condition).	By Coast Artillery	By Coast Artillery.
Crockett, Fort, Tex.	2 companies Coast Artillery.	do	Do.
Crook, Fort, Nebr.	Headquarters, and 2 battalions Infantry.	By detachment of Infantry.	By Infantry.
Dade, Fort, Fla.	2 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
D. A. Russell, Fort, Wyo.	1 regiment Cavalry, 1 regiment Infantry, 1 regiment Field Artillery, field hospital and ambulance company, 1 company Signal Corps.	By 2 troops Cavalry, field hospital, and ambulance compan .	By Cavalry and Infantry in 1906, 1907, 1908, and 1909; by Cavalry, Infantry, Engineers, Field Artillery, Signal Corps, and Hospital Corps, in 1910; by Cavalry, Infantry, Field Artillery, and field hospital and ambulance company, 1911 and 1912; by Cavalry, field hospital and ambulance company in 1913, 1914, and 1915.
Delaware, Fort, Del.	Barrack space, and 3 sets officers quarters in old fort.	Ungarrisoned	No garrison for 10 years.

Statement showing the use now being made of each Army post and the use that has been made during each year of their existence for the last 10 years—Continued.

Name of post.	Capacity.	How occupied now.	How occupied during each of last 10 years.
Des Moines, Fort, Iowa.	1 regiment Cavalry	By detachment of Cavalry.	By Cavalry in 1906 and up to 1913, inclusive, and by detachment in 1914 and 1915.
De Soto, Fort, Fla	1 company Coast Artillery.	By detachment of Coast Artillery.	By Coast Artillery.
Douglas, Fort, Utah	1 regiment Infantry	By detachment of Infantry.	By Infantry, 1906 to 1913, inclusive, and by detachment in 1914 and 1915.
Du Pont, Fort, Del	5 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Eagle Pass, Camp, Tex.	Permanent barracks for 1 company Infantry.	By Field Artillery and Infantry.	By detachment of Cavalry, 1912 and 1913; and by Cavalry, Infantry, and Field Artillery, in 1914 and 1915.
Ethan Allen, Fort, Vt	1 regiment Cavalry, 1 battalion Field Artillery.	By Cavalry and field hospital and ambulance company.	By Cavalry and Field Artillery, in 1906 and 1907; and by Cavalry from 1907 to date.
Flagler, Fort, Wash	3 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Foster, Fort, Me	No permanent buildings.	By detachment of Coast Artillery (subpost of Fort Constitution, N. H.).	By detachment of Coast Artillery.
Front Royal, Va		As remount depot	As remount depot, 1912 to 1915, inclusive.
Gaines, Fort, Ala	1 company Coast Artillery.	By detachment of Coast Artillery (subpost of Fort Morgan, Ala.).	By detachment of Coast Artillery, 1909 to date.
George Wright, Fort, Wash.	Headquarters and 2 battalions Infantry.	By Infantry	By Infantry.
Getty, Fort, R. I	10 men	By detachment of Coast Artillery (subpost of Fort Greble, R. I.).	By detachment of Coast Artillery in 1910.
Governors Island, N. Y.		As headquarters Eastern Department.	As headquarters Eastern Department.
Greble, Fort, R. I	3 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Hamilton, Fort, N. Y	5 companies Coast Artillery.	do	Do.
Hancock, Fort, N. J	6 companies Coast Artillery.	do	Do.
Heath, Fort, Mass	12 men	By detachment of Coast Artillery (subpost, Fort Banks, Mass).	By detachment of Coast Artillery.
H. G. Wright, Fort, N. Y.	6 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Howard, Fort, Md	4 companies Coast Artillery.	do	Do.
Huachuca, Fort, Ariz	1 regiment Cavalry	By Cavalry	By Cavalry.
Hunt, Fort, Va	1 company Coast Artillery.	By Coast Artillery	By Coast Artillery.
Jackson Barracks, La	3 companies Coast Artillery.	do	Do.
Jackson, Fort, La	do	Ungarrisoned	By detachment of Coast Artillery in 1907, 1908, 1909 (subpost of Jackson Barracks, La.).
Jay, Fort, N. Y	Headquarters and 1 battalion Infantry.	By Infantry	By Infantry.
Jefferson Barracks, Mo	1,526 men	As recruit depot	As recruit depot.
Jeffersonville (Ind.) depot.		As Quartermaster depot.	As Quartermaster depot.
Keogh, Fort, Mont		As remount depot	By Cavalry, 1906 and 1907, and as remount depot, 1908 to 1915, inclusive.
Key West Barracks, Fla.	1 company Coast Artillery.	By Coast Artillery	By Coast Artillery.
Lawton, Fort, Wash	1 battalion Infantry	By Infantry	By Infantry.
Leavenworth, Fort, Kans.	1 regiment Infantry, 1 squadron Cavalry, 1 company Hospital Corps, 1 battalion Engineers, 1 battalion Field Artillery, 2 companies Signal Corps, and Army Service Schools.	By Cavalry and Signal Corps.	By Cavalry, Infantry, Field Artillery, Engineer and Signal Corps, 1906 to 1913, inclusive, and by Cavalry and Signal Corps, 1914 and 1915.

Statement showing the use now being made of each Army post and the use that has been made during each year of their existence for the last 10 years—Continued.

Name of post.	Capacity.	How occupied now.	How occupied during each of last 10 years.
Letterman General Hospital, California.	519 patients	As hospital for officers and enlisted men.	As hospital for officers and enlisted men.
Levett, Fort, Me	1 company Coast Artillery.	By Coast Artillery	By Coast Artillery.
Lincoln, Fort, N. Dak.	1 battalion Infantry	Ungarrisoned	By Infantry 1906 to 1912, inclusive; ungarrisoned 1913, 1914, and 1915.
Logan H. Roots, Fort, Ark.	.....do	By detachment of Infantry.	By Infantry.
Logan, Fort, Colo	10 companies	As recruit depot	By Infantry 1907 and 1908; as recruit depot 1909 to date.
Lyons, Fort, Me	5 men	By detachment of Coast Artillery (subpost of Fort McKinley, Me.).	By detachment of Coast Artillery.
McDowell, Fort, Cal	325 men (additional 300 men in hospital being converted into barracks).	Recruit depot	By Infantry 1906, 1907, and 1908; as recruit depot 1909 to date.
McHenry, Fort, Md		Turned over to city of Baltimore.	By Coast Artillery 1906 to 1911, inclusive.
McIntosh, Fort, Tex	1 battalion Infantry	By Cavalry	By Infantry 1906 to 1911 inclusive; by Cavalry 1912 to date.
McKinley, Fort, Me	7 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
McPherson, Fort, Ga	1 regiment Infantry	By detachment of Infantry.	By Infantry.
McRee, Fort, Fla	9 men	By detachment of Coast Artillery (subpost of Fort Barrancas, Fla.).	By detachment of Coast Artillery.
Mackenzie, Fort, Wyo	Headquarters and 2 battalions Infantry.	By detachment of Infantry.	By Infantry.
Madison Barracks, N. Y.	.....do	By Infantry	Do.
Mansfield, Fort, R. I.	1 company Coast Artillery.	By Coast Artillery	By Coast Artillery.
Mason, Fort, Cal., supply depot. (See San Francisco depot.)			
Mason, Fort, Cal. (post).	1 company Signal Corps.	By Signal Corps	By Engineers 1906, 1907, and 1908; by Infantry 1909, 1910, and 1911; by Signal Corps 1913, 1914, and 1915.
Meade, Fort, S. Dak.	Headquarters and 2 squadrons Cavalry.	By Cavalry	By Cavalry 1906 to 1911, inclusive; by Cavalry and Infantry 1912; by Cavalry, 1913 to date.
Michie, Fort, N. Y	1 company Coast Artillery.	By Coast Artillery	By Coast Artillery.
Miley, Fort, Cal	2 companies Coast Artillery.	.....do	Do.
Missoula, Fort, Mont	1 battalion Infantry	Ungarrisoned	By Infantry 1906 to 1912; ungarrisoned in 1913.
Monroe, Fort, Va	10 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Morgan, Fort, Ala	4 companies Coast Artillery.	.....do	Do.
Mott, Fort, N. J	2 companies Coast Artillery.	By detachment of Coast Artillery.	Do.
Moultrie, Fort, S. C	4 companies Coast Artillery.	By Coast Artillery	Do.
Myer, Fort, Va	1 squadron Cavalry, 1 battalion Field Artillery.	By Cavalry and Field Artillery.	By Cavalry and Field Artillery.
Myer, Fort, Va., quartermaster depot.		For storage purposes as part of the Washington general depot.	For storage purposes as part of Washington depot.
New York (N. Y.) depot.	Army building and block owned by United States.	By Army and depot offices.	By Army and depot offices.
Niagara, Fort, N. Y	Headquarters and 2 battalions Infantry.	Ungarrisoned	By Infantry.
Oglethorpe, Fort, Ga	1 regiment Cavalry	By Cavalry	By Cavalry.
Omaha (Nebr.) depot		As quartermaster depot.	As quartermaster depot.
Omaha, Fort, Nebr	3 companies Signal Corps.	Ungarrisoned	By Signal Corps 1906 to 1913, inclusive, ungarrisoned 1914 and 1915.
Ontario, Fort, N. Y	1 battalion Infantry	By Infantry	By Infantry.

Statement showing the use now being made of each Army post and the use that has been made during each year of their existence for the last 10 years—Continued.

Name of post.	Capacity.	How occupied now.	How occupied during each of last 10 years.
Philadelphia (Pa.) depot (formerly Schuylkill Arsenal).		As a general depot	As a general depot.
Philip Kearney, Fort, R. I.		Detachment of Coast Artillery Corps (subpost of Fort Greble, R. I.).	By detachment of Coast Artillery.
Pickens, Fort, Fla.	1 company Coast Artillery.	By detachment of Coast Artillery (subpost of Fort Barrancas, Fla.).	Do.
Pittsburgh storage and supply depot (formerly Alleghany Arsenal).		For storage purposes by Quartermaster Corps except a few buildings used by Geological Survey.	For storage purposes by the Quartermaster Corps, except a few buildings used by Geological Survey.
Plattsburg Barracks, N. Y.	1 regiment Infantry	By Infantry	By Infantry.
Porter, Fort, N. Y.	1 battalion Infantry	Ungarrisoned	Do.
Preble, Fort, Me.	2 companies Coast Artillery.	By Coast Artillery (subpost of Fort Williams, Me.).	By Coast Artillery.
Presidio of Monterey, Cal.	1 regiment Infantry, 1 squadron Cavalry, 1 field hospital and ambulance company.	By Cavalry	By Cavalry and Infantry, 1906; by Infantry 1907 and 1908; by Cavalry and Infantry 1909; by Infantry 1910, 1911, 1912; by Cavalry 1913; by Cavalry and field hospital and ambulance company 1914 and 1915.
Presidio of San Francisco, Cal.	Permanent buildings for 1 regiment Infantry and 1 squadron Cavalry; also cantonment buildings for 2 additional regiments Infantry.	By Cavalry, Infantry, field hospital and ambulance company.	By Infantry, Cavalry, Field Artillery, and Coast Artillery, 1906, 1907; by same and Signal Corps 1908, 1909, 1910, 1911; by Infantry, Cavalry, Signal Corps, field hospital, and ambulance company 1912 and 1913; by Infantry and Coast Artillery 1914; by Coast Artillery, Cavalry, Engineers, field hospital, and ambulance company 1915.
Reno, Fort, Okla.		As a remount depot	By Infantry 1906; ungarrisoned 1907 and 1908; remount depot 1909 to date.
Revere, Fort, Mass.	1 company Coast Artillery.	By Coast Artillery (subpost of Fort Andrews, Mass.).	By Coast Artillery.
Riley, Fort, Kans.	1 regiment Cavalry, 1 regiment Field Artillery, Mounted Service Schools.	By Cavalry	By Cavalry and Field Artillery.
Robinson, Fort, Nebr.	11 troops Cavalry	do	By Cavalry.
Rodman, Fort, Mass.	1 company Coast Artillery.	By Coast Artillery	By Coast Artillery.
Rosecrans, Fort, Cal.	2 companies Coast Artillery.	do	Do.
St. Louis (Mo.) clothing depot.		As a general depot	As a general depot.
St. Louis (Mo.) powder depot.		For storage purposes	For storage purposes.
St. Paul (Minn.) depot.	Army building owned by United States.	By Army offices and storerooms.	By Army offices and storerooms.
St. Philip, Fort, La.	1 company Coast Artillery.	By detachment of Coast Artillery (subpost of Jackson Barracks, La.).	By detachment of Coast Artillery.
Sam Houston, Fort, Tex.	2 regiments Cavalry, 1 battalion Field Artillery.	By Cavalry, Infantry, Engineers, Field Artillery, and field hospital and ambulance company.	By Cavalry, Infantry, Field Artillery, 1906, 1907, and 1908; by same and Signal Corps, 1909, 1910, and 1911; by Cavalry and Field Artillery, 1912 and 1913; by Cavalry, Field Artillery, Signal Corps, and field hospital and ambulance company, 1914 and 1915.
San Francisco (Cal.) depot.		As a general depot	As a general depot. Docks and storehouses completed at Fort Mason, in 1911.

Statement showing the use now being made of each Army post and the use that has been made during each year of their existence for the last 10 years—Continued.

Name of post.	Capacity.	How occupied now.	How occupied during each of last 10 years.
San Diego Barracks, Cal.	1 company Infantry	By Cavalry	Ungarrisoned until January, 1915; by Cavalry in 1915.
San Jacinto, Tex		By detachment of Coast Artillery (subpost of Fort Crockett, Tex.).	By detachment of Coast Artillery, 1911 to 1915, inclusive.
Schuyler, Fort, N. H.	2 companies Coast Artillery.	By detachment of Coast Artillery.	By Coast Artillery.
Screven, Fort, Ga	4 companies Coast Artillery.	By Coast Artillery	Do.
Sheridan, Fort, Ill	1 regiment Infantry, 4 troops Cavalry, and 2 batteries Field Artillery.	By Cavalry and Signal Corps.	By Infantry, Cavalry, and Field Artillery, 1906 to 1911, inclusive; by Infantry and Cavalry, 1912; by Cavalry only in 1913, 1914; by Cavalry and Signal Corps in 1915.
Sill, Fort, Okla	1 regiment Field Artillery and 1 squadron Cavalry.	By Infantry and Field Artillery.	By Cavalry, 1906; by Cav- and Field Artillery, 1907, 1908, 1909, and 1910; by Field Artillery only in 1911; by Infantry and Field Artillery in 1912; by Field Artillery only in 1913 and 1914, and Infantry and Field Artillery in 1915.
Slocum, Fort, N. Y.	1,644 men	As recruit depot	As recruit depot.
Smallwood, Fort, Md	20 men	By detachment of Coast Artillery.	Detachment of Coast Artillery.
Snelling, Fort, Minn	1 regiment Infantry, 1 squadron Cavalry, 1 battalion Field Artillery.	By detachment	By Infantry, Cavalry, and Field Artillery, 1906 to 1911, inclusive; by Field Artillery only in 1912, 1913, and 1914; by detachment in 1915.
Standish, Fort, Mass	30 men	By detachment of Coast Artillery (subpost of Fort Strong, Mass.).	By detachment of Coast Artillery.
Stark, Fort, N. H.	20 men	By detachment of Coast Artillery (subpost of Fort Constitution, N. H.).	Do.
Stevens, Fort, Oreg	3 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Strong, Fort, Mass	4 companies Coast Artillery.	do	Do.
Sumter, Fort, S. C.	50 men	Detachment of Coast Artillery (subpost of Fort Moultrie, S. C.).	By detachment of Coast Artillery.
Taylor, Fort, Fla		Ungarrisoned	By detachment of Coast Artillery, 1906; since ungarrisoned.
Terry, Fort, N. Y.	6 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Thomas, Fort, Ky	Headquarters and 2 battalions Infantry.	By detachment of Infantry.	By Infantry.
Totten, Fort, N. Y.	7 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Travis, Fort, Tex		By detachment of Coast Artillery (subpost of Fort Crockett, Tex.).	By detachment of Coast Artillery, 1911 to date.
United States Disciplinary Barracks, Alcatraz, Cal.		As military prison	As military prison.
United States Disciplinary Barracks, Fort Leavenworth, Kans.		do	Do.
Vancouver Barracks, Wash.	1 regiment Infantry and 1 battalion Field Artillery.	By Engineers	By Infantry and Field Artillery 1906 and 1907; by same and Engineers 1908 to 1913, inclusive; and by Infantry and Engineers 1914 and 1915.
Wadsworth, Fort, N. Y.	2 companies Coast Artillery in casemates	By Coast Artillery	By Coast Artillery.
Walla Walla, Fort, Wash.	1 squadron Cavalry	Ungarrisoned	By Cavalry 1906 to 1909, inclusive; since ungarrisoned.
Walter Reed General Hospital, District of Columbia.	164 patients	As a general hospital for officers and enlisted men of the Army.	As a general hospital, 1909 to date.

Statement showing the use now being made of each Army post and the use that has been made during each year of their existence for the last 10 years.—Continued.

Name of post.	Capacity.	How occupied now.	How occupied during each of last 10 years.
Ward, Fort, Wash	1 company Coast Artillery.	By Coast Artillery	By Coast Artillery.
Warren, Fort, Mass	2 companies Coast Artillery.	do	Do.
Washington Barracks, District of Columbia.	4 companies Engineers.	By Engineers and War College.	By Engineers.
Washington, Fort, Md	5 companies Coast Artillery.	By detachment of Coast Artillery.	By Coast Artillery.
Wayne, Fort, Mich	2 battalions Infantry	By detachment	By infantry to 1912; by detachment of Infantry 1913, 1914, and 1915.
West Point, N. Y		By Military Academy	By Military Academy.
Wetherill, Fort, R. I	20 men	By detachment of Coast Artillery (subpost of Fort Adams, R. I.).	By detachment of Coast Artillery.
Whipple Barracks, Ariz.	1 battalion Infantry	Ungarrisoned	By Cavalry, 1906; by Infantry and Cavalry, 1907; by Infantry, 1909 and 1910; and by detachment, 1911, 1912, and 1913; since ungarrisoned.
Whitman, Fort, Wash		By detachment of Coast Artillery (subpost of Fort Worden, Wash.).	By detachment of Coast Artillery, 1911 to date.
Wm. H. Harrison, Mont.	Headquarters and 1 battalion Infantry.	Ungarrisoned	By Infantry, 1906 to 1912, inclusive; ungarrisoned, 1913 to date.
Williams, Fort, Me	5 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Wingate, Fort, N. Mex.	4 troops Cavalry	Ungarrisoned	By Cavalry, 1906 to 1910, inclusive; ungarrisoned, 1911 to date.
Winfield Scott, Fort, Cal.	12 companies Coast Artillery.	By Coast Artillery	By detachment of Coast Artillery, 1907 to 1911, inclusive; by Coast Artillery companies, 1912 to date.
Wood, Fort, N. Y	1 company Signal Corps.	By Signal Corps	By Signal Corps.
Worden, Fort, Wash	6 companies Coast Artillery.	By Coast Artillery	By Coast Artillery.
Yellowstone, Fort, Wyo.	1 squadron Cavalry	By detachment of Cavalry.	By Cavalry.
Yosemite, Camp, Cal	2 troops Cavalry	Abandoned	By Cavalry, 1906 to 1913, inclusive; since ungarrisoned.

Statement showing the military posts in the United States, their location, when established, cost of land, construction and repair of buildings, systems, etc.

[As shown by records in the Quartermaster General's Office.]

No.	Posts.	Location.	When established.	Cost of land, buildings, etc., to Dec. 31, 1915.		
				Cost of land.	Cost of buildings, etc.	Total cost.
1	Adams, R. I	Narragansett Bay, 3 miles from Newport, R. I	1824	$26,688.74	$472,454.20	$499,142.94
2	Andrews, Mass	Massachusetts Bay, 9 miles from Boston, Mass	1901	65,000.00	710,510.45	775,510.45
3	Apache, Ariz	On S. F. P. R. R., 90 miles from Holbrook, Ariz	1870	[1] Nothing.	73,869.07	73,869.07
4	Armistead, Md	8 miles from Baltimore, Md	1898	25,883.40	12,831.40	38,714.80
5	Army and Navy General Hospital	Hot Springs, Ark	1882	[2] Nothing.	393,953.91	393,953.91
6	Baker, Cal	6 miles from San Francisco, Cal	1897	125,000.00	542,865.71	667,865.71
7	Banks, Mass	Near Winthrop, 7 miles from Boston, Mass	1899	161,458.98	294,815.23	456,274.21
8	Barrancas, Fla	8 miles from Pensacola, Fla	1839	[3] Nothing.	448,882.09	448,882.09
9	Barry, Cal	7 miles from San Francisco, Cal	1904	(4)	158,472.88	158,472.88
10	Bayard, N. Mex	2 miles from Bayard, N. Mex	1900	[1,5] 89,214.00	839,220.98	928,434.98
11	Benicia Barracks, Cal	Suisun Bay, 35 miles from San Francisco, Cal	1851	[1] Nothing.	27,139.80	27,139.80
12	Benjamin Harrison, Ind	9 miles northeast of Indianapolis, Ind	1905	279,538.01	1,205,994.41	1,485,532.42
13	Bliss, Tex	5 miles northeast of El Paso, Tex	1890	[6] Nothing.	1,166,959.77	1,166,959.77
14	Boise Barracks, Idaho	2 miles from Boise City	1863	[1] Nothing.	398,049.73	398,049.73
15	Brady, Mich	Adjoining city of Sault Ste. Marie, Mich	1886	12,000.00	443,104.17	455,104.17
16	Canby, Wash	Northern side, mouth of Columbia River	1863	[1] Nothing.	25,216.60	25,216.60
17	Carroll, Md	Patapsco River, 4½ miles from Baltimore	1900	[7] Nothing.	9,822.25	9,822.25
18	Casey, Wash	Admiralty Inlet, 53 miles from Seattle, Wash	1899	36,019.05	555,145.51	591,164.56
19	Caswell, N. C	27 miles from Wilmington, N. C	1825	1,780.00	612,075.66	613,855.66
20	Clark, Tex	Opposite town of Brackettsville, Tex	1853	60,000.00	79,749.17	139,749.17
21	Columbia, Wash	North bank of Columbia River near mouth	1899	3,216.60	183,862.86	187,079.46
22	Columbus Barracks, Ohio	1 mile from Columbus, Ohio	1875	16,000.00	1,279,342.31	1,295,342.31
23	Constitution, N. H	3 miles from Portsmouth, N. H	1808	[8] 135,002.10	37,462.19	172,464.29
24	Crockett, Tex	In city of Galveston, Tex	1900	160,002.00	401,302.15	561,304.15
25	Crook, Nebr	5 miles from Omaha, Nebr	1890	66,666.66	858,198.20	924,864.86
26	Dade, Fla	35 miles from Tampa, Fla	1899	[1] Nothing.	494,247.48	494,247.48
27	D. A. Russell, Wyo	3 miles west of Cheyenne, Wyo	1867	[9,10] 219,677.77	4,954,054.31	5,173,732.08
28	Delaware, Del	Peapatch Island, Delaware River, near New Castle, Del	1814	[6] Nothing.	3,587.25	3,587.25
29	Des Moines, Iowa	5 miles from Des Moines, Iowa	1900	[11] 113,700.00	1,404,919.40	1,518,619.40
30	De Soto, Fla	34 miles from Tampa, Fla	1900	[1] Nothing.	197,289.19	197,289.19
31	Douglas, Utah	4 miles from Salt Lake City, Utah	1858	[1,12] 29,600.00	931,196.00	960,796.00
32	Du Pont, Del	2 miles from Delaware City, Del	1898	65,500.00	745,062.97	810,562.97
33	Eagle Pass, Tex	In town of Eagle Pass, Tex	1849	[13] 20,000.00	Unknown.	20,000.00
34	Ethan Allen, Vt	4 miles from Burlington, Vt	1894	[14] 10,000.00	997,362.31	1,007,362.31
35	Flagler, Wash	5 miles from Port Townsend, Wash	1866	[1,15] 5,680.00	471,826.31	477,506.31
36	Foster, Me	6 miles from Portsmouth, N. H	1900	3,000.00	1,995.00	4,995.00

37	**Front Royal remount depot**	Near Front Royal, Va	1912	202,042.35	372,587.98	574,630.33
38	**Gaines, Ala**	30 miles from Mobile, Ala	1848	5,000.00	59,704.82	64,704.82
39	Geo. Wright, Wash	4 miles from Spokane, Wash	1899	[6] Nothing.	698,125.12	698,125.12
40	Getty, R. I	5 miles from Newport, R. I	1903	60,000.00	13,978.82	73,978.82
41	Governors Island, N. Y	In New York Bay	1880	(16)	204,552.71	204,552.71
42	Greble, R. I	5 miles from Newport, R. I	1900	50,987.90	623,261.28	674,249.18
43	Hamilton, N. Y	7 miles from Brooklyn, N. Y	1831	[17] 238,115.69	465,328.51	703,444.20
44	Hancock, N. J	Sandy Hook, 6 miles from Atlantic Highlands, N. J	1858	48,752.00	1,005,337.46	1,054,089.46
45	Heath, Mass	7 miles from Boston, Mass	1900	106,324.68	6,330.00	112,654.68
46	H. G. Wright, N. Y	Fishers Island, 8 miles from New London, Conn	1898	299,754.83	903,007.18	1,202,762.01
47	Howard, Md	17 miles from Baltimore, Md	1899	38,614.28	607,249.68	645,863.96
48	Huachuca, Ariz	Cochise County, 20 miles north of Mexican line	1877	[1] Nothing.	679,284.14	679,284.14
49	Hunt, Va	Potomac River, 15 miles from Washington, D. C	1898	42,526.87	309,725.55	352,252.42
50	Jackson Barracks, La	6 miles from New Orleans, La	1834	46,500.00	151,566.58	198,066.58
51	Jackson, La	73 miles below New Orleans, La	1846	[1] Nothing.	5,626.00	5,626.00
52	Jay, N. Y	On Governors Island, N. Y	1904	[6] Nothing.	332,562.15	332,562.15
53	Jefferson Barracks, Mo	10 miles south of St. Louis, Mo	1878	[6] Nothing.	1,372,593.58	1,372,593.58
54	Jeffersonville depot	In Jeffersonville, Ind	1870	[6] Nothing.	215,258.77	215,258.77
55	Keogh (remount depot)	In Custer County, near Miles City, Mont	1878	[1] Nothing.	145,965.44	145,965.44
56	Key West Barracks, Fla	On island of Key West, Fla	1831	9,769.11	166,612.40	176,381.51
57	Lawton, Wash	6 miles from Seattle, Wash	1895	[6] Nothing.	556,786.25	556,786.25
58	Leavenworth, Kans	3 miles from city of Leavenworth, Kans	1827	[1, 18] 50,010.00	4,367,435.33	4,417,445.33
59	Letterman General Hospital	On reservation of Presidio of San Francisco, Cal	....	[1] Nothing.	787,810.49	787,810.49
60	Levett, Me	On Cushings Island, 4 miles from Portland, Me	1900	362,424.60	221,718.24	584,142.84
61	Lincoln, N. Dak	4 miles from Bismarck, N. Dak	1895	[6] Nothing.	618,459.27	618,459.27
62	Logan H. Roots, Ark	4 miles from Little Rock, Ark	1892	(19)	428,521.67	428,521.67
63	Logan, Colo	10 miles from city of Denver, Colo	1887	[20] [21] 116,640.00	741,026.51	857,666.51
64	Lyon, Me	4 miles from city of Portland, Me	1873	10,000.00	1,375.00	11,375.00
65	McDowell, Cal	On Angel Island, 7 miles from San Francisco, Cal	1865	[1] Nothing.	618,961.96	618,961.96
66	McHenry, Md	Within city limits of Baltimore, Md	1814	45,045.69	106,489.24	151,534.93
67	McIntosh, Tex	1 mile from Laredo, Tex	1849	[6] Nothing.	229,235.52	229,235.52
68	Mackenzie, Wyo	3 miles from Sheridan, Wyo	1898	[1] Nothing.	1,218,966.00	1,218,966.00
69	McKinley, Me	5 miles from Portland, Me	1902	167,351.00	1,041,720.78	1,209,071.78
70	McPherson, Ga	4 miles from Atlanta, Ga	1885	29,742.00	1,045,746.13	1,075,488.13
71	McRee, Fla	10 miles from Pensacola, Fla	1833	[1] Nothing.	79,039.00	79,039.00
72	Madison Barracks, N. Y	Sacketts Harbor, N. Y	1815	[22] 26,381.00	655,895.17	682,276.17
73	Mansfield, R. I	7 miles from Westerly, R. I	1900	5,654.00	197,176.47	202,830.47
74	Mason, Cal	San Francisco, Cal	1863	[1] Nothing.	138,424.05	138,424.05
75	Mason supply depot	.....do	1908	125,320.03	1,905,217.50	2,030,537.53
76	Meade, S. Dak	2 miles from Sturgis, S. Dak	1878	[23] 3,000.00	1,227,602.82	1,230,602.82
77	Michie, N. Y	11 miles from New London, Conn	1899	[24] Nothing.	175,291.14	175,291.14
78	Miley, Cal	6 miles from San Francisco, Cal	1900	75,000.00	290,441.48	365,441.48
79	Missoula, Mont	4 miles from Missoula, Mont	1877	[1, 25] Nothing.	594,455.51	594,455.51
80	Monroe, Va	Hampton Roads, 6 miles from Newport News, Va	1888	45,150.00	2,526,606.83	2,571,756.83
81	Morgan, Ala	30 miles from Mobile, Ala	1819	4,875.00	690,968.84	695,843.84
82	Mott, N. J	6 miles from Salem, N. J	1897	16,000.00	412,809.49	428,809.49
83	Moultrie, S. C	6 miles from Charleston, S. C	1841	313,401.52	703,806.03	1,017,207.55
84	**Myer, Va**	**4 miles from Capitol, Washington, D. C**	1872	[26] 176,800.00	1,478,079.44	1,654,879.44
85	**Myer Depot, Va**	.....do	....	(27)	161,236.14	161,236.14

See pp. 15 and 16 for footnotes.

Statement showing the military posts in the United States, their location, when established, cost of land, construction and repair of buildings, systems, etc.—Continued.

[As shown by records in the Quartermaster General's Office.]

No.	Posts.	Location.	When established.	Cost of land, buildings, etc., to Dec. 31, 1915.		
				Cost of land.	Cost of buildings, etc.	Total cost.
86	New York (N. Y.) depot	In New York City, N. Y	1886	$250,000.00	$625,875.36	$875,875.36
87	Niagara, N. Y	7 miles from Lewiston, N. Y	1778	[28] Nothing.	444,204.74	444,204.74
88	Oglethorpe, Ga	11 miles from Chattanooga, Tenn	1904	[29] 1,479.00	1,581,577.98	1,583,056.98
89	Omaha (Nebr.) depot	Adjoins city of Omaha, Nebr	1879	[30] 11,958.00	26,588.32	38,546.32
90	Omaha, Nebr	5 miles from city of Omaha, Nebr	1888	8,091.00	446,808.51	454,899.51
91	Ontario, N. Y	Adjoining city of Oswego on Lake Ontario, N. Y	1727	[6] Nothing.	339,719.57	339,719.57
92	Philadelphia (Pa.) depot	In city of Philadelphia, Pa	1799	2,293.33	365,984.92	368,278.25
93	Philip Kearney, R. I	7 miles from Newport, R. I	1901	65,000.00	3,357.45	68,357.45
94	Pickens, Fla	9 miles from Pensacola, Fla	1828	4,000.00	184,476.68	188,476.68
95	Pittsburgh storage and supply depot.	Pittsburgh, Pa	1814	24,365.65	2,765.76	27,131.41
96	Plattsburg Barracks, N. Y	Town of Plattsburg, west shore of Lake Champlain	1838	[31] 21,500.00	947,112.13	968,612.13
97	Popham, Me	Kennebec River in town of Phipsburg, Me	1857	17,350.00	Nothing.	17,350.00
98	Porter, N. Y	3 miles from Buffalo, N. Y	1843	13,982.00	271,765.74	285,747.74
99	Preble, Me	3 miles from Portland, Me	1808	47,303.00	216,435.44	263,738.44
100	Presidio of Monterey, Cal	2 miles from Monterey, Cal	1903	[32] 10,000.00	415,364.19	425,364.19
101	Presidio of San Francisco	City of San Francisco, Cal	1850	[1] Nothing.	1,908,653.55	1,908,653.55
102	Reno (Okla.) remount depot	On north fork of Canadian River, Okla	1883	[1] Nothing.	197,156.05	197,156.05
103	Revere, Mass	Near Hull, Mass., 9 miles from Boston	1900	254,791.90	188,954.47	443,746.37
104	Riley, Kans	On Kansas River, 3½ miles from Junction City	1853	[1] Nothing.	3,616,839.01	3,616,839.01
105	Robinson, Nebr	On White River, 3 miles from Crawford, Nebr	1874	[1] Nothing.	1,085,428.30	1,085,428.30
106	Rodman, Mass	4 miles from New Bedford, Mass	1857	78,005.00	230,880.94	308,885.94
107	Rosecrans, Cal	6 miles from San Diego, Cal	1898	[1] Nothing.	424,993.27	424,993.27
108	St. Louis clothing depot	In city of St. Louis, Mo	1827	8,500.00	[33] 423,866.55	[33] 432,366.55
109	St. Louis powder depot	On Jefferson Barracks Reservation, Mo	1826	Nothing.	([34])	([34])
110	St. Paul (Minn.) depot	St. Paul, Minn	1882	Nothing.	90,679.50	90,679.50
111	St. Philip, La	On Mississippi River, 65 miles below New Orleans	1814	4,165.90	212,101.05	216,266.95
112	Sam Houston, Tex	2 miles from San Antonio, Tex	1865	[36] 479,320.00	[36] 3,512,519.39	[36] 3,991,839.39
113	San Antonio, department headquarters.	On Fort Sam Houston Reservation	1870	([37])	([37])	([37])
114	San Francisco (Cal.) depot	Included in Fort Mason supply depot				
115	San Diego Barracks, Cal	In city of San Diego, Cal	1855	[6] Nothing.	7,134.21	7,134.21
116	San Jacinto, Tex	Eastern end of Galveston Island	1899	[1] Nothing.	7,533.00	7,533.00
117	Schuyler, N. Y	3 miles from New York City	1833	17,004.00	112,132.79	129,136.79
118	Screven, Ga	On Tybee Island, 17 miles from Savannah, Ga	1898	54,315.00	659,057.66	713,372.66
119	Sheridan, Ill	On Lake Michigan, 25 miles north of Chicago, Ill	1887	[38] 312,095.00	1,766,467.72	2,078,562.72
120	Sill, Okla	27 miles from Rush Springs, Okla	1868	[1] Nothing.	1,691,000.93	1,691,000.93

121	Slocum, N. Y	2 miles from New Rochelle, N. Y	1868	38,000.00	1,396,833.40	1,434,833.04
122	Smallwood, Md	11 miles from Baltimore, Md	1900	27,500.00	7,066.25	34,566.25
123	Snelling, Minn	7 miles from St. Paul, Minn	1850	[39] 110,000.00	1,882,474.49	1,992,474.49
124	Standish, Mass	7 miles from Boston, Mass	1900	[40] Nothing.	31,406.40	31,406.40
125	Stark, N. H	3 miles from Portsmouth, N. H	1873	5,003.00	11,425.00	16,428.00
126	Stevens, Oreg	Mouth of Columbia River, 7 miles from Astoria	1865	6,476.17	563,513.15	569,989.32
127	Strong, Mass	5 miles from Boston, Mass	1898	26,762.60	694,198.86	720,961.46
128	Sumter, S. C	6 miles from Charleston, S. C	1828	[41] Nothing.	13,507.63	13,507.63
129	Taylor, Fla	1 mile from Key West, Fla	1844	125,867.00	54,310.36	180,177.36
130	Terry, N. Y	13 miles from New London, Conn	1898	89,700.00	941,558.79	1,031,258.79
131	Thomas, Ky	3 miles from Newport, Ky., on the Ohio River	1890	58,900.00	593,525.34	652,425.34
132	Totten, N. Y	17 miles from New York City, on Long Island	1862	228,000.00	1,157,042.52	1,385,042.52
133	Travis, Tex	Bolivars Point, 7 miles from Galveston, Tex	1898	36,000.00	650.00	36,650.00
134	United States Disciplinary Barracks.	Fort Leavenworth, Kans	1874	([42])	890,420.30	890,420.30
135	....do	Alcatraz Island, San Francisco Bay, Cal	1853	[1] Nothing.	702,518.71	702,518.71
136	....do	Fort Jay, N. Y. (included in Fort Jay)				
137	Vancouver Barracks, Wash	Columbia River, 6 miles from confluence of Willamette	1825	[1] Nothing.	1,038,020.15	1,038,020.15
138	Wadsworth, N. Y	On Staten Island, entrance to New York Bay	1865	1,033,785.87	252,312.65	1,286,098.52
139	Walla Walla, Wash	1 mile from Walla Walla, Wash	1859	[1] Nothing.	362,829.24	362,829.24
140	Walter Reed General Hospital	Takoma Park, D. C., 5 miles from Washington	1907	98,222.50	673,024.60	771,247.10
141	Ward, Wash	11 miles from Seattle, Wash	1903	16,201.72	278,135.16	294,336.88
142	Warren, Mass	Boston Harbor, 7 miles from Boston, Mass	1861	[43] Nothing.	267,128.29	267,128.29
143	Washington Barracks, D. C	City of Washington, D. C	1787	75,667.92	987,472.44	1,063,140.36
144	Washington, Md	Potomac River, 13 miles from Washington, D. C	1815	49,316.49	682,244.38	731,560.87
145	Wayne, Mich	4 miles from Detroit, Mich	1864	7,164.37	542,354.62	549,518.99
146	West Point, N. Y	On Hudson River, 51 miles from New York City	1790	296,494.46	[44] 485,010.69	781,505.15
147	Wetherill, R. I	2 miles from Newport, R. I	1900	405,585.44	50,699.00	456,284.44
148	Whipple Barracks, Ariz	1 mile from Prescott, Ariz	1864	[1] Nothing.	610,328.82	610,328.82
149	Whitman, Wash	12 miles from Mount Vernon Wash	1908	3,000.09	350.00	3,350.00
150	Wm. H. Harrison, Mont	4 miles from Helena, Mont	1892	[45] 50,000.00	478,882.58	528,882.58
151	Williams, Me	4 miles from Portland, Me	1899	89,697.99	733,531.76	823,229.75
152	Wingate, N. Mex	3 miles from Wingate Station on A., T. & S. F. R. R	1868	[1] Nothing.	244,472.03	244,472.03
153	Winfield Scott Cal	At Fort Point, south side of Golden Gate	1882	[1] Nothing.	914,101.94	914,101.94
154	Wood, N. Y	On Bedloes Island, 1⅜ miles from New York City	1822	[41] Nothing.	635,673.94	635,673.94
155	Worden, Wash	On Puget Sound, 51 miles from Seattle, Wash	1900	75,697.33	816,841.16	892,538.49
156	Yellowstone, Wyo	In Yellowstone National Park, 5 miles from Gardiner	1886	[46] Nothing.	845,838.16	845,838.16
	Total			9,090,281.50	94,839,939.38	103,930,220.88

See pp. 15 and 16 for footnotes.

Statement showing the military posts in the United States, their location, when established, cost of land, construction and repair of buildings, systems, etc.—Continued.

[As shown by records in the Quartermaster General's Office.]

No.	Posts.	Location.	When established.	Cost of land, buildings, etc., to Dec. 31, 1915.		
				Cost of land.	Cost of buildings, etc.	Total cost.
86	New York (N. Y.) depot	In New York City, N. Y	1886	$250,000.00	$625,875.36	$875,875.36
87	Niagara, N. Y	7 miles from Lewiston, N. Y	1778	[28] Nothing.	444,204.74	444,204.74
88	Oglethorpe, Ga	11 miles from Chattanooga, Tenn	1904	[29] 1,479.00	1,581,577.98	1,583,056.98
89	Omaha (Nebr.) depot	Adjoins city of Omaha, Nebr	1879	[30] 11,958.00	26,588.32	38,546.32
90	Omaha, Nebr	5 miles from city of Omaha, Nebr	1888	8,001.00	446,808.51	454,809.51
91	Ontario, N. Y	Adjoining city of Oswego on Lake Ontario, N. Y	1727	[6] Nothing.	339,719.57	339,719.57
92	Philadelphia (Pa.) depot	In city of Philadelphia, Pa	1799	2,293.33	365,984.92	368,278.25
93	Philip Kearney, R. I	7 miles from Newport, R. I	1901	65,000.00	3,357.45	68,357.45
94	Pickens, Fla	9 miles from Pensacola, Fla	1828	4,000.00	184,476.68	188,476.68
95	Pittsburgh storage and supply depot.	Pittsburgh, Pa	1814	24,365.65	2,765.76	27,131.41
96	Plattsburg Barracks, N. Y	Town of Plattsburg, west shore of Lake Champlain	1838	[31] 21,500.00	947,112.13	968,612.13
97	Popham, Me	Kennebec River in town of Phipsburg, Me	1857	17,350.00	Nothing.	17,350.00
98	Porter, N. Y	3 miles from Buffalo, N. Y	1843	13,982.00	271,765.74	285,747.74
99	Preble, Me	3 miles from Portland, Me	1808	47,303.00	216,435.44	263,738.44
100	Presidio of Monterey, Cal	2 miles from Monterey, Cal	1903	[32] 10,000.00	415,364.19	425,364.19
101	Presidio of San Francisco	City of San Francisco, Cal	1850	[1] Nothing.	1,908,653.55	1,908,653.55
102	Reno (Okla.) remount depot	On north fork of Canadian River, Okla	1883	[1] Nothing.	197,156.05	197,156.05
103	Revere, Mass	Near Hull, Mass., 9 miles from Boston	1900	254,791.90	188,954.47	443,746.37
104	Riley, Kans	On Kansas River, 3½ miles from Junction City	1853	[1] Nothing.	3,616,839.01	3,616,839.01
105	Robinson, Nebr	On White River, 3 miles from Crawford, Nebr	1874	[1] Nothing.	1,085,428.30	1,085,428.30
106	Rodman, Mass	4 miles from New Bedford, Mass	1857	78,005.00	230,880.94	308,885.94
107	Rosecrans, Cal	6 miles from San Diego, Cal	1898	[1] Nothing.	424,993.27	424,993.27
108	St. Louis clothing depot	In city of St. Louis, Mo	1827	8,500.00	[33] 423,866.55	[33] 432,366.55
109	St. Louis powder depot	On Jefferson Barracks Reservation, Mo	1826	Nothing.	([34])	([34])
110	St. Paul (Minn.) depot	St. Paul, Minn	1882	Nothing.	90,679.50	90,679.50
111	St. Philip, La	On Mississippi River, 65 miles below New Orleans	1814	4,165.90	212,101.05	216,266.95
112	Sam Houston, Tex	2 miles from San Antonio, Tex	1865	[35] 479,320.00	[33] 3,512,519.39	[36] 3,991,839.39
113	San Antonio, department headquarters.	On Fort Sam Houston Reservation	1870	([37])	([37])	([37])
114	San Francisco (Cal.) depot	Included in Fort Mason supply depot				
115	San Diego Barracks, Cal	In city of San Diego, Cal	1855	[8] Nothing.	7,134.21	7,134.21
116	San Jacinto, Tex	Eastern end of Galveston Island	1899	[1] Nothing.	7,533.00	7,533.00
117	Schuyler, N. Y	3 miles from New York City	1833	17,004.00	112,132.79	129,136.79
118	Screven, Ga	On Tybee Island, 17 miles from Savannah, Ga	1898	54,315.00	659,057.66	713,372.66
119	Sheridan, Ill	On Lake Michigan, 25 miles north of Chicago, Ill	1887	[38] 312,095.00	1,766,467.72	2,078,562.72
120	Sill, Okla	27 miles from Rush Springs, Okla	1869	[1] Nothing.	1,691,000.93	1,691,000.93

121	Slocum, N. Y	2 miles from New Rochelle, N. Y	1868	38,000.00	1,396,833.40	1,434,833.04
122	Smallwood, Md	11 miles from Baltimore, Md	1900	27,500.00	7,066.25	34,566.25
123	Snelling, Minn	7 miles from St. Paul, Minn	1850	[39] 110,000.00	1,882,474.49	1,992,474.49
124	Standish, Mass	7 miles from Boston, Mass	1900	[40] Nothing.	31,406.40	31,406.40
125	Stark, N. H	3 miles from Portsmouth, N. H	1873	5,003.00	11,425.00	16,428.00
126	Stevens, Oreg	Mouth of Columbia River, 7 miles from Astoria	1865	6,476.17	563,513.15	569,989.32
127	Strong, Mass	5 miles from Boston, Mass	1898	26,762.60	694,198.86	720,961.46
128	Sumter, S. C	6 miles from Charleston, S. C	1828	[41] Nothing.	13,507.63	13,507.63
129	Taylor, Fla	1 mile from Key West, Fla	1844	125,867.00	54,310.36	180,177.36
130	Terry, N. Y	13 miles from New London, Conn	1898	89,700.00	941,558.79	1,031,258.79
131	Thomas, Ky	3 miles from Newport, Ky., on the Ohio River	1890	58,900.00	593,525.34	652,425.34
132	Totten, N. Y	17 miles from New York City, on Long Island	1862	228,000.00	1,157,042.52	1,385,042.52
133	Travis, Tex	Bolivars Point, 7 miles from Galveston, Tex	1898	36,000.00	650.00	36,650.00
134	United States Disciplinary Barracks.	Fort Leavenworth, Kans	1874	(42)	890,420.30	890,420.30
135	do	Alcatraz Island, San Francisco Bay, Cal	1853	[1] Nothing.	702,518.71	702,518.71
136	do	Fort Jay, N. Y. (included in Fort Jay)				
137	Vancouver Barracks, Wash	Columbia River, 6 miles from confluence of Willamette	1825	[1] Nothing.	1,038,020.15	1,038,020.15
138	Wadsworth, N. Y	On Staten Island, entrance to New York Bay	1865	1,033,785.87	252,312.65	1,286,098.52
139	Walla Walla, Wash	1 mile from Walla Walla, Wash	1859	[1] Nothing.	362,829.24	362,829.24
140	Walter Reed General Hospital	Takoma Park, D. C., 5 miles from Washington	1907	98,222.50	673,024.60	771,247.10
141	Ward, Wash	11 miles from Seattle, Wash	1903	16,201.72	278,135.16	294,336.88
142	Warren, Mass	Boston Harbor, 7 miles from Boston, Mass	1861	[43] Nothing.	267,128.29	267,128.29
143	Washington Barracks, D. C	City of Washington, D. C	1787	75,667.92	987,472.44	1,063,140.36
144	Washington, Md	Potomac River, 13 miles from Washington, D. C	1815	49,316.49	682,244.38	731,560.87
145	Wayne, Mich	4 miles from Detroit, Mich	1864	7,164.37	542,354.62	549,518.99
146	West Point, N. Y	On Hudson River, 51 miles from New York City	1790	296,494.46	[44] 485,010.69	781,505.15
147	Wetherill, R. I	2 miles from Newport, R. I	1900	405,585.44	50,699.00	456,284.44
148	Whipple Barracks, Ariz	1 mile from Prescott, Ariz	1864	[1] Nothing.	610,328.82	610,328.82
149	Whitman, Wash	12 miles from Mount Vernon Wash	1908	3,000.00	350.00	3,350.00
150	Wm. H. Harrison, Mont	4 miles from Helena, Mont	1892	[45] 50,000.00	478,882.58	528,882.58
151	Williams, Me	4 miles from Portland, Me	1899	89,697.99	733,531.76	823,229.75
152	Wingate, N. Mex	3 miles from Wingate Station on A., T. & S. F. R. R	1868	[1] Nothing.	244,472.03	244,472.03
153	Winfield Scott Cal	At Fort Point, south side of Golden Gate	1882	[1] Nothing.	914,101.94	914,101.94
154	Wood, N. Y	On Bedloes Island, 1⅞ miles from New York City	1822	[41] Nothing.	635,673.94	635,673.94
155	Worden, Wash	On Puget Sound. 51 miles from Seattle, Wash	1900	75,697.33	816,841.16	892,538.49
156	Yellowstone, Wyo	In Yellowstone National Park, 5 miles from Gardiner	1886	[46] Nothing.	845,838.16	845,838.16
	Total			9,090,281.50	94,839,939.38	103,930,220.88

See pp. 15 and 16 for footnotes.

Statement showing the military posts in the United States, their location, when established, cost of land, construction and repair of buildings, systems, etc.—Continued.

[As shown by records in the Quartermaster General's Office.]

No.	Posts.	Cost of annual repairs for past 10 fiscal years.										Total cost of repairs for 10 years.
		1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	
1	Adams, R. I	$1,585.00	$1,188.88	$2,411.04	$3,500.00	$172.14	$6,493.00	$15,135.23	$14,520.41	$20,062.69	$18,422.08	$83,490.47
2	Andrews, Mass	275.00	609.44	988.02	1,500.00	1,149.57	1,799.00	6,319.98	8,103.30	8,504.80	13,443.35	42,692.46
3	Apache, Ariz	2,514.00	1,075.00	925.00	3,570.00	3,510.00	3,373.50	8,852.50	3,715.00	6,098.90	8,493.50	42,127.40
4	Armistead, Md	80.00	100.00		82.00	246.00	247.00	785.00	400.00	395.00	391.00	2,726.00
5	Army and Navy General Hospital	3,824.40	1,200.00	1,090.00	2,328.60	2,524.58	2,043.00	8,743.08	7,660.63	13,670.10	11,608.45	54,692.84
6	Baker, Cal	255.00		563.67	2,519.60	1,443.70	4,036.85	12,770.50	13,879.42	13,370.42	6,709.83	55,548.99
7	Banks, Mass	1,106.60	709.44	1,391.02	2,025.00	2,541.60	3,163.17	7,302.42	6,682.85	4,784.63	8,613.56	38,320.29
8	Barrancas, Fla	1,470.00		1,425.00	1,633.85	4,206.65	4,031.00	9,700.20	13,010.75	13,971.69	10,248.45	59,697.59
9	Barry, Cal				231.00	2,789.41	2,602.75	6,133.00	6,651.77	4,432.06	7,165.57	30,005.56
10	Bayard, N. Mex	8,915.90	8,255.40	14,260.00	9,820.00	5,101.42	6,117.00	9,273.73	6,412.75	4,679.29	8,517.50	81,352.99
11	Benicia Barracks, Cal	3,575.00			1,419.30					100.27	261.00	5,355.57
12	Benjamin Harrison, Ind					5,829.44	6,107.18	13,809.55	11,358.76	11,023.87	9,696.00	57,824.80
13	Bliss, Tex	1,246.50	1,214.00	1,258.21	9,575.00	7,389.90	7,975.00	19,253.63	10,600.00	15,718.03	23,945.48	98,175.75
14	Boise Barracks, Idaho	697.50		1,849.50	696.20	900.00	1,656.30	5,042.26	1,741.90	267.70	40.16	12,891.52
15	Brady, Mich	2,770.50		1,280.28	2,577.81	2,871.17	8,921.28	6,700.40	3,201.30	3,417.31	3,343.40	35,083.45
16	Canby, Wash				60.00	300.00	811.60	1,338.30	1,629.00	470.00	210.00	4,818.90
17	Carroll, Md	55.00	75.00			59.00	22.00	238.00	160.00	230.00	142.00	981.00
18	Casey, Wash	615.46		600.00	1,530.00	1,132.45	1,758.75	11,295.21	6,253.60	3,115.96	4,063.80	30,365.23
19	Caswell, N. C	2,217.50		1,404.50	2,511.65	2,989.36	3,374.50	12,208.02	12,561.09	10,234.95	9,605.80	57,107.37
20	Clark, Tex	2,134.00	1,029.00	1,137.50	540.00	2,729.06	2,412.50	1,881.30	3,100.33	4,465.75	6,011.15	25,440.59
21	Columbia, Wash	480.50		967.00		295.00	501.00	1,516.91	3,827.86	1,557.18	1,666.60	10,812.05
22	Columbus Barracks, Ohio	4,151.20		5,800.00	14,000.00	16,750.00	13,899.00	8,837.78	6,466.50	14,825.50	8,999.39	93,729.37
23	Constitution, N. H	570.80	300.00	329.94	500.00	932.50	1,973.95	4,147.65	3,654.71	5,718.39	4,768.02	22,895.96
24	Crockett, Tex							2,572.45	2,798.44	2,857.83	7,435.90	15,664.62
25	Crook, Nebr	9,512.00	4,000.00	2,525.00	1,000.00	3,400.00	3,891.95	5,931.30	9,860.37	10,287.91	9,226.26	59,634.79
26	Dade, Fla	948.00		1,549.90	1,503.27	1,947.94	3,023.82	7,506.83	16,373.50	4,563.14	8,932.25	46,348.65
27	D. A. Russell, Wyo	2,020.00	1,000.00	2,535.00	3,040.00	9,210.00	19,341.33	26,246.99	25,945.43	24,906.46	20,735.13	134,980.34
28	Delaware, Del											
29	Des Moines, Iowa	905.50	500.00	4,000.00	5,040.00	7,030.00	9,616.50	8,303.29	12,129.44	7,234.63	9,592.94	64,352.30
30	De Soto, Fla	448.00		781.00	1,599.82	1,568.75		2,115.75	1,969.00	2,785.20	2,543.00	13,810.52
31	Douglas, Utah	3,580.00	3,500.00	3,100.00	5,050.00	7,896.00	9,919.41	23,657.90	8,107.62	9,255.42	6,595.22	80,661.57
32	Du Pont, Del	1,206.60	559.44	1,004.02	2,600.00	2,492.73	2,562.50	7,208.00	10,700.63	7,663.50	8,513.95	44,511.37
33	Eagle Pass, Tex					47.84				525.45		573.29
34	Ethan Allen, Vt	3,831.00	3,971.08	2,679.72	4,065.00	6,571.46	6,605.25	11,958.48	7,315.95	14,264.19	6,600.10	67,862.23
35	Flagler, Wash	1,979.75		846.00	2,040.00	1,986.20	4,358.00	6,202.07	7,616.40	5,591.11	3,723.40	34,342.93
36	Foster, Me				154.65	34.75	58.00	102.50	100.50	427.00	440.00	1,317.40
37	Front Royal remount depot							2,194.98	7,188.45	4,549.00	7,615.00	21,547.43
38	Gaines, Ala				213.20	826.00	525.00	783.75	300.00	870.00	310.00	3,827.95

39	Geo. Wright, Wash	799.50		1,162.00	2,031.50	2,387.95	1,812.00	8,039.35	1,582.93	2,304.75	2,820.15	22,940.13
40	Getty, R. I						45.00	85.00	830.00	850.00	268.00	2,078.00
41	Governors Island, N. Y	891.80	1,150.00	1,000.00	5,221.25	3,579.27	5,916.65	11,036.55	9,307.71	18,824.98	21,722.41	78,650.62
42	Greble, R. I	1,061.60	659.44	1,188.68	1,080.00	2,174.75	2,194.00	4,649.25	7,398.68	5,400.00	9,807.19	35,613.59
43	Hamilton, N. Y	3,049.80	1,143.88	2,634.72	2,500.00	2,694.55	4,561.35	8,749.58	5,821.00	7,679.30	15,013.13	53,847.31
44	Hancock, N. J	1,680.20	443.88	1,976.04	3,000.00	4,793.50	6,642.50	13,109.55	8,099.77	13,242.64	13,133.90	66,121.98
45	Heath, Mass	33.00	100.00			100.00	303.75	155.00	301.00	248.50	541.11	1,782.36
46	H. G. Wright, N. Y	1,041.60		1,011.22	2,048.75	2,523.00	1,974.30	7,824.52	6,649.61	13,021.15	7,333.95	43,428.10
47	Howard, Md	1,061.60	514.16	1,327.36	2,016.50	4,227.40	3,326.50	9,677.28	6,919.80	6,357.44	8,270.65	43,698.69
48	Huachuca, Ariz	3,266.17	1,188.00	1,615.25	7,628.00	3,059.00	3,487.09	16,751.03	8,158.50	15,677.73	17,536.01	78,366.78
49	Hunt, Va	530.80	390.72	643.14	588.50	751.00	2,296.50	3,718.39	2,213.00	3,695.24	4,508.35	19,335.64
50	Jackson Barracks, La	1,018.00		2,286.80	2,520.56	2,877.21	4,350.85	4,089.38	5,044.88	5,296.30	3,787.00	31,270.98
51	Jackson, La	65.50						497.00	700.00	487.00	515.00	2,264.50
52	Jay, N. Y	2,439.00	1,118.88	1,317.36	2,592.06	1,693.57	4,350.65	13,382.93	6,509.71	12,387.13	8,403.67	54,194.96
53	Jefferson Barracks, Mo	4,540.00	2,500.00	6,745.00	10,495.00	11,883.85	7,524.00	18,987.05	12,963.37	20,311.15	15,202.16	111,151.58
54	Jeffersonville depot	1,200.00	500.00	800.00	295.10	1,038.54	1,277.00	2,367.40	2,116.72	2,048.25	2,509.90	14,152.91
55	Keogh (remount depot)	2,913.15	1,407.50				3,533.00	7,368.00	1,989.80	3,449.44	2,101.00	22,761.89
56	Key West Barracks, Fla	3,189.50		1,977.00	1,732.86	3,811.05	4,995.95	9,478.45	6,526.52	5,934.30	7,159.00	44,804.63
57	Lawton, Wash	575.00		3,070.00	1,845.00	2,048.16	2,525.00	7,826.24	6,915.71	7,196.56	3,183.20	35,184.87
58	Leavenworth, Kans	4,820.00	4,900.00	6,075.00	9,031.00	20,600.00	25,616.43	40,590.89	48,742.36	60,422.82	41,474.54	262,273.04
59	Letterman General Hospital	1,450.00	3,010.00	58.50	240.00	8,155.00	15,496.00	27,556.45	19,121.10	27,423.02	33,123.50	135,633.57
60	Levett, Me			260.00	510.32	343.31	25.42	1,448.62	539.00	1,661.25	3,419.51	8,207.43
61	Lincoln, N. Dak	482.20	319.95	1,140.95	1,207.30	2,872.00	1,941.00	4,317.56	3,786.97		20.00	16,087.93
62	Logan H. Roots, Ark	336.50	364.00	614.01	986.00	1,972.81	1,867.00	4,410.37	4,296.89	1,806.28	5,687.81	22,341.67
63	Logan, Colo	3,172.00	3,950.00	4,445.40	7,685.00	8,351.77	12,354.00	11,128.93	8,710.90	13,928.79	11,348.24	85,075.03
64	Lyon, Me						35.00	125.00	55.00	90.00	70.00	375.00
65	McDowell, Cal	600.00		495.95	2,111.00	2,646.55	3,132.50	6,395.71	3,225.26	6,654.02	6,914.56	32,175.55
66	McHenry, Md	931.60	899.72		1,533.00	1,203.00	3,080.00	4,897.82	233.00	14.00		12,792.14
67	McIntosh, Tex	147.50	995.00	1,217.00	4,858.00	9,591.35	2,665.00	5,753.41	4,073.96	4,379.83	4,122.66	37,803.71
68	Mackenzie, Wyo	944.40	500.00	1,575.00	1,540.00	1,988.78	2,775.88	7,245.33	6,615.00	6,089.72	5,112.71	34,386.82
69	McKinley, Me	981.60	528.88	1,626.70	550.00	1,478.86	2,504.65	13,928.23	7,749.17	13,757.85	7,494.90	50,600.84
70	McPherson, Ga	2,122.50		2,351.00	3,799.02	5,500.43	8,250.50	10,910.20	13,507.79	20,073.25	14,323.42	80,838.11
71	McRee, Fla	300.00				127.00	368.00	1,226.50	6,184.50	454.00	580.00	9,240.00
72	Madison Barracks, N. Y	2,654.00	2,542.48	2,634.72	1,669.50	3,273.00	5,008.65	8,461.51	1,638.10	13,007.69	8,913.16	49,802.81
73	Mansfield, R. I	590.80	319.72	419.34	510.00	1,870.00	2,870.00	65.00	243.00	1,304.50	967.00	9,159.36
74	Mason, Cal	1,458.50		1,018.39	1,700.00	1,823.28	2,586.15	16,826.03	5,359.78	14,869.14	10,639.25	56,280.52
75	Mason supply depot								3,082.00	1,835.00	4,208.00	9,125.00
76	Meade, S. Dak	3,032.90	4,000.00	10,140.00	10,041.65	3,976.00	5,939.78	7,067.97	12,579.04	12,815.33	9,934.64	79,527.31
77	Michie, N. Y	197.00	279.72	199.12	500.00	269.00	610.00	1,176.00	670.00	1,783.85	12,527.66	18,212.35
78	Miley, Cal	1,455.00		298.25	1,341.20	1,431.45	1,977.05	4,341.90	50.00	7,178.77	4,415.70	22,489.32
79	Missoula, Mont	1,526.00	1,372.00	2,416.25	1,605.00	2,108.76	2,522.00	6,162.51	1,180.87	2,168.18	3,688.20	24,749.77
80	Monroe, Va	4,066.40	2,271.76	4,739.76	5,655.00	3,630.87	13,112.30	22,226.25	20,752.86	27,007.45	23,598.27	127,060.92
81	Morgan, Ala	600.00			641.81	2,819.40	5,033.50	9,916.58	12,024.10	8,550.20	5,271.53	44,857.12
82	Mott, N. J	560.80	959.44	988.02	1,530.00	949.82	1,285.75	6,091.42	4,805.61	8,003.95	3,262.73	28,437.54
83	Moultrie, S. C	2,150.00		2,120.00	3,740.76	4,843.33	4,607.37	18,177.14	12,488.90	14,390.01	10,652.58	73,170.09
84	Myer, Va	3,271.00	1,778.32	2,084.04	3,622.50	5,263.41	6,771.15	24,747.29	15,531.76	17,364.78	13,231.57	93,665.82
85	Myer Depot, Va	225.50				351.30	525.00	943.75	19.67	2,923.95	1,322.50	6,311.67
86	New York (N. Y.) depot	800.00		500.00	500.00	1,450.78	2,644.00	6,382.47	4,376.15	9,105.53	3,174.98	28,933.91
87	Niagara, N. Y	2,028.65	1,233.88	1,437.36	2,070.00	653.00	4,138.97	10,297.41	5,843.10	10,504.89	6,241.10	44,448.36
88	Oglethorpe, Ga	490.00		2,783.00	2,996.57	6,102.18	9,317.00	18,708.85	19,463.02	20,606.25	8,243.85	88,710.67
89	Omaha (Nebr.) depot	559.47	465.05	300.00	1,221.50	1,049.00	5,034.00	1,729.31	2,226.00	1,787.39	1,520.29	15,891.01

Statement showing the military posts in the United States, their location, when established, cost of land, construction and repair of buildings, systems, etc.—Continued.

No.	Posts.	Cost of annual repairs for past 10 fiscal years.										Total cost of repairs for 10 years.
		1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	
90	Omaha, Nebr		$349.58	$939.54	$1,500.00	$1,374.00	$3,170.05	$4,078.20	$3,827.90	$1,299.07	$1,944.10	$13,481.54
91	Ontario, N. Y		1,040.08	1,002.00	2,024.70	1,884.30	2,134.75	5,154.41	3,027.00	4,729.42	3,692.13	24,688.79
92	Philadelphia (Pa.) depot	$2,500.00	3,980.00	4,000.00	3,876.50	1,899.88	2,951.50	6,011.25	4,023.38	4,225.48	4,096.55	37,564.54
93	Philip Kearney, R. I							120.00	1,078.63	150.00		1,348.63
94	Pickens, Fla			912.00	679.37	829.70	1,225.00	3,495.65	3,518.68	3,296.79	3,284.20	17,241.39
95	Pittsburgh storage and supply depot.	983.25		500.00	1,397.00	12,299.00	3,973.00	6,436.43	2,689.57	2,499.50	1,497.70	32,275.45
96	Plattsburg Barracks, N. Y	3,464.60	2,846.64	2,000.00	2,000.00	1,597.60	8,327.11	12,158.36	10,739.92	9,148.56	9,203.30	61,486.09
97	Popham, Me						62.00		118.25	555.00	110.00	845.25
98	Porter, N. Y	1,041.60	1,102.88	1,392.36	2,141.00	1,990.75	8,690.80	6,649.93	5,465.27	6,993.09	7,146.33	42,614.01
99	Preble, Me	981.60	569.44	673.68	1,071.50	1,170.15	1,139.08	2,751.32	965.00	4,599.53	1,529.00	15,500.30
100	Presidio of Monterey, Cal	1,125.00		846.77	5,878.14	6,290.66	10,476.15	22,357.40	22,758.08	29,510.37	20,906.19	120,148.76
101	Presidio of San Francisco	17,760.00		3,358.19	9,077.60	13,475.41	27,064.96	71,273.04	71,286.41	81,021.95	63,760.89	358,078.45
102	Reno (Okla.) remount depot	1,735.00	563.00	1,037.00		561.87	2,000.00	3,479.50	4,625.60	2,851.10	2,849.20	19,702.27
103	Revere, Mass	560.80	279.72	683.68	1,065.00	1,391.95	263.00	1,896.60	70.00	3,061.30	6,001.00	15,273.05
104	Riley, Kans	6,430.00	7,850.00	4,060.00	9,070.00	17,450.00	22,310.00	29,185.85	29,920.50	35,608.23	25,286.47	187,171.05
105	Robinson, Nebr	3,257.20	1,000.00	2,580.00	3,000.00	4,924.25	9,731.52	20,601.07	7,999.45	8,419.98	7,761.63	69,275.10
106	Rodman, Mass	570.80	369.72	659.34	515.00	780.40	1,222.90	4,509.05	2,783.19	2,121.33	2,878.75	16,410.48
107	Rosecrans, Cal	85.00			911.48	798.25	1,683.70	5,526.91	4,223.00	3,175.16	4,386.17	20,788.67
108	St. Louis clothing depot	2,500.00	2,143.00	3,500.00	6,035.00	3,164.00	4,017.00	10,420.29	11,194.25	2,661.00	1,146.00	46,780.54
109	St. Louis powder depot	500.00	1,565.00	1,689.00	685.00	400.00	405.00	1,446.00	697,60	850.00	275.00	8,512.60
110	St. Paul (Minn.) depot	362.00	495.00	1,379.00	588.50	1,027.30	799.00	811.00	463.76	159.00	333.00	6,417.56
111	St. Philip, La	160.50		407.00	548.70	589.05	1,018.25	2,173.32	1,754.00	2,287.00	2,442.00	11,379.82
112	Sam Houston, Tex	3,090.50	3,300.00	3,307.50	14,500.00	40,129.46	38,320.75	88,975.11	34,275.52	37,604.91	38,527.12	302,030.87
113	San Antonio, department headquarters.	2,938.28	2,370.00	1,622.50	5,977.00	3,445.31	4,934.95	5,492.20	2,655.00	6,283.30		35,718.54
114	San Francisco (Cal.) depot, included in Fort Mason supply depot.											
115	San Diego Barracks, Cal			26.29	114.50	97.62	708.35			628.25		1,575.01
116	San Jacinto, Tex										140.00	140.00
117	Schuyler, N. Y	1,966.65	899.16	2,831.64	1,575.15	1,712.20	839.00	980.15	856.00	1,235.20	2,865.80	15,769.95
118	Screven, Ga	1,700.00		1,508.00	3,764.76	3,428.90	7,463.50	12,586.44	14,010.57	16,101.37	14,998.75	75,562.29
119	Sheridan, Ill	5,543.90		6,518.76	8,472.43	15,282.71	25,658.67	66,673.81	31,909.40	34,826.51	38,384.96	233,271.15
120	Sill, Okla	1,659.00	1,081.00	1,100.02	3,220.00	4,908.20	2,184.50	12,586.90	19,154.96	10,800.21	12,505.14	69,199.98
121	Slocum, N. Y	1,923.20	1,259.44	17,000.00	9,333.00	2,636.72	4,000.00	14,212.94	14,224.14	7,604.40	14,578.00	86,771.84
122	Smallwood, Md					91.00	117.00	434.50	915.35	3,045.00	432.00	5,034.85
123	Snelling, Minn	3,906.93	3,694.75	4,349.10	11,849.70	13,947.11	10,141.42	35,553.70	18,879.80	22,058.08	39,976.32	164,446.91
124	Standish, Mass			389.00	199.00	44.00	98.02	319.17	220.00	477.00	1,367.00	3,113.19
125	Stark, N. H				155.75	11.50	60.00	179.95	210.00	2,040.02	2,450.00	5,107.22
126	Stevens, Oreg	1,040.00		1,575.00	1,640.00	1,357.00	2,531.00	9 7.88	6,706.90	3,390.00	8,757.96	31,585.24

127	Strong, Mass	1,016.60	559.44	658.68	1,100.00	2,132.00	1,237.00	6,645.51	4,593.40	6,175.37	12,948.75	37,066.75
128	Sumter, S. C			48.00	167.48	342.00	40.00	1,350.00	15.00	15.00		1,977.48
129	Taylor, Fla				1,562.90	261.00	2,858.50	1,688.50	949.75	525.00	731.60	8,577.25
130	Terry, N. Y	1,016.60	684.44	1,337.36	2,043.50	1,112.00	1,663.30	7,536.08	7,359.03	8,564.80	6,924.84	38,241.95
131	Thomas, Ky	2,084.05		2,713.98	2,318.84	7,437.54	5,341.64	6,337.25	7,790.27	6,981.70	3,351.10	44,356.37
132	Totten, N. Y	1,583.00	1,626.60	2,376.04	4,650.00	3 377.25	4,083.65	16,426.51	12,623.04	19,049.48	17,629.53	83,425.10
133	Travis, Tex								134.00			134.00
	United States Disciplinary Barracks:											
134	Fort Leavenworth, Kans		6,712.00	7,500.00	3,529.00	6,048.36	7,082.25	16,065.31	13,399.20	19,488.93	14,521.08	94,346.13
135	Alcatara, Ill. and Cal	1,025.00		1,645.00		936.05	1,647.00	2,661.38	6,040.81	3,902.35	9,781.40	27,638.99
136	Fort Jay, N. Y., included in Fort Jay.											
137	Vancouver Barracks, Wash	7,820.93		8,381.00	15,093.00	13,794.06	13,726.85	23,793.06	20,295.77	21,938.70	35,203.18	160,046.55
138	Wadsworth, N. Y	2,113.20	1,398.60	1,646.70	2,650.00	2,821.50	2,772.00	9,703.43	5,888.41	8,135.79	13,370.25	50,499.88
139	Walla Walla, Wash	2,136.00		2,172.00	1,456.00	3,140.80			205.95	62.85		9,173.60
140	Walter Reed General Hospital					364.00	956.00	3,342.08	3,678.76	4,308.30	6,037.61	18,686.75
141	Ward, Wash			200.00	300.00	200.00	305.00	1,923.09	2,033.90	1,173.12	1,660.20	7,795.31
142	Warren, Mass	1,011.60	886.40	1,180.68	1,016.00	1,546.50	1,886.90	6,809.07	2,839.00	7,743.23	11,178.40	36,097.78
143	Washington Barracks, D. C	1,011.60	1,118.88	1,000.00	1,510.00	2,086.00	3,762.00	9,983.73	4,351.44	10,733.27	10,220.15	45,777.07
144	Washington, Md	1,537.40	841.16	821.64	2,000.00	1,501.11	3,344.00	13,108.89	6,677.25	7,794.85	9,026.47	46,652.77
145	Wayne, Mich	3,710.00		2,668,98	3,635.33	4,162.76	5,031.40	9,455.21	7,696.00	10,352.29	5,866.30	52,578.27
146	West Point, N. Y	4,555.82	1,182.00	3,700.00	3,049.00	3,111.91	3,456.00	10,574.58	5,522.90	5,893.00	8,834.95	[11] 49,880.16
147	Wetherill, R. I	93.50	150.00	200.00	175.00	251.70	365.00	978.26	451.00	602.00	675.00	3,941.46
148	Whipple Barracks, Ariz	309.57	300.00			807.00	5,986.00	10,483.45	3,767.73			21,653.75
149	Whitman, Wash											
150	Wm. H. Harrison, Mont	1,071.00	832.00	2,057.00	1,435.00	2,506.89	1,366.65	4,467.25	1,504.90	111.96		15,352.65
151	Williams, Me	1,001.60	559.44	1,000.00	2,000.00	2,452.50	3,591.00	9,510.18	6,693.08	7,490.55	5,672.27	39,970.62
152	Wingate, N. Mex	1,000.00		1,145.00	4,000.00	2,812.00	2,630.00	4.50		254.96	237.45	12,083.91
153	Winfield Scott, Cal							1,884.15	2,494.32	12,200.48	9,626.33	26,205.28
154	Wood, N. Y	500.80	371.72	867.34	500.00	779.42	2,196.04	13,369.27	2,957.75	7,743.35	7,761.72	37,047.41
155	Worden, Wash	347.57		3,061.00	1,742.00	4,750.50	6,554.60	10,053.88	6,716.13	5,421.11	8,459.00	47,105.79
156	Yellowstone, Wyo	1,146.75	315.00	456.12	1,801.81	2,227.63	965.00	10,386.90	4,917.36	4,699.94	3,614.07	30,530.58
	Total	238,249.65	125,279.15	256,077.54	376,517.80	497,165.54	651,050.94	1,403,785.85	1,084,062.56	1,269.948.37	1,211,883.19	7,114,040.39

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[1] Reservation set apart from public domain, for military purposes, by Executive order.

[2] Built on land acquired by the Interior Department in 1877.

[3] Transferred from naval reservation.

[4] Cost of Fort Barry Reservation included in Fort Baker Reservation.

[5] Cost of only certain additions to the reservation.

[6] Lands donated to the Government.

[7] Submerged ground filled in.

[8] Includes about 32 acres near the reservation, purchased in 1911, at a cost of $80,000.

[9] Includes land for maneuver purposes.

[10] Greater part obtained from public domain by Executive order; 13,167.66 acres purchased.

[11] Includes the target range reservation of about 896.96 acres.

[12] Cost of small additions to the reservation.

[13] This is for 62.99 acres; 92.35 acres additional were donated to the Government.

[14] 600 acres donated to the Government.
[15] Cost of additions to reservation.
[16] Included in Fort Jay Reservation.
[17] 60 acres donated and 11 acquired by exchange.
[18] Cost of about 410 acres added to the reservation.
[19] Exchanged for arsenal grounds of city of Little Rock.
[20] Original reservation of 635.4 acres donated to the United States.
[21] Includes target range reservation.
[22] Includes cost of target range reservation, $10,187.
[23] Cost of 21 acres added to the reservation in 1889.
[24] Transferred from the Treasury Department to the War Department in 1896.
[25] 320 acres donated to the United States.
[26] Includes cost of the entire "Arlington Reservation" of 1,046 acres.
[27] Cost included in Fort Myer Reservation.
[28] This reservation reverts to State when the United States ceases to occupy it for military purposes.
[29] Cost of only 2.94 acres added to the reservation; remainder of the reservation taken from the national park adjoining.
[30] Original reservation of 5 acres donated to the United States.
[31] Cost of only 200 acres; remainder of reservation donated to the United States.
[32] Cost of 154 acres added in 1907; remainder of reservation obtained without cost to the United States.
[33] Includes powder depot.
[34] Consolidated with clothing depot.
[35] Includes 17,273.87 acres 17 miles from the post, near Leon Springs, purchased at cost of $112,000; also old target range of 310 acres.
[36] Includes department headquarters, San Antonio, Tex., located on the Fort Sam Houston Reservation.
[37] Consolidated with Fort Sam Houston.
[38] 632.5 acres of reservation donated to the United States.
[39] Cost of addition of 850 acres purchased for target range in 1905; original reservation obtained from public domain.
[40] Ceded to the United States by the city of Boston.
[41] Ceded to the United States by the State.
[42] Included in Fort Leavenworth Reservation.
[43] Ceded to the United States by the city of Boston.
[44] This amount includes expenditures for the military post only, no record being available in this office of amounts expended on account of the Military Academy.
[45] Cost of 750 acres added to the reservation; original reservation of 1,040 acres donated to the Government.
[46] Reservation, set aside for military purposes, was part of the Yellowstone National Park.

64TH CONGRESS, 1st Session. } SENATE. { DOCUMENT No. 262.

FERTILIZER SITUATION IN THE UNITED STATES.

LETTER

FROM

THE SECRETARY OF AGRICULTURE,

TRANSMITTING

A REPORT AS TO THE FERTILIZER SITUATION IN THE UNITED STATES.

JANUARY 27, 1916.—Referred to the Committee on Agriculture and Forestry and ordered to be printed.

DEPARTMENT OF AGRICULTURE,
Washington, January 26, 1916.

To the PRESIDENT OF THE SENATE.

In compliance with Senate Resolution No. 65, of January 11, 1916, I have the honor to make the following statement on the fertilizer situation:

There is practically no potash in this country at the present time for fertilizer use. In 1913, when conditions were normal, the country's supply of potash salts came from Germany in the form of muriate of potash 225,000 tons, sulphate of potash 48,000 tons, kainit 467,000 tons, and manure salts 171,000 tons, with a total cost to the farmer of $20,450,000. Since the outbreak of the war this supply has been entirely cut off. Small quantities of potash which were held over from former years are now priced at from eight to twelve times their normal value. A small quantity, it is believed, is being produced by a fertilizer company from the deposits of alunite in Utah. In December, 1913, the wholesale price of potash (potassium muriate, 80 per cent basis), was $39 per ton. In December, 1915, the same salt was quoted at from $480 to $500 per ton. This price is so high as to render it unprofitable to use this material for agricultural purposes.

The necessity of assuring American agriculture an adequate supply of phosphoric acid at a reasonable price is daily becoming more apparent. Acid phosphate is the basis of nearly all commercial mixed fertilizers. It is made by the action of sulphuric acid upon phosphate rock. Our available sources of phosphate rock are greater than those of any other nation. The main supply for domestic consumption and for exportation comes from Tennessee, South Carolina and Florida. There exists also vast deposits of phosphate rock in Utah, Wyoming, Montana and Idaho. Large portions of these latter deposits have been withdrawn from private use pending legislation for their utilization and only small amounts have been shipped from these fields.

In 1913, 3,111,221 tons of phosphate rock were produced in this country. Up to that time about one-half of the quantity mined was exported to Europe. The rock in its natural state is not readily absorbed as a plant food. It is made available for this purpose by treatment with sulphuric acid, about 1 ton of the acid being used to a ton of phosphate rock. When thus treated, a superphosphate containing 14 to 18 per cent of water-soluble phosphoric acid is made. The bulk of the sulphuric acid which enters into the manufacture of acid phosphate is made by fertilizer companies. Practically every fertilizer establishment (excepting the cottonseed meal factories) having an annual capacity of 15,000 tons or more operates also a sulphuric-acid plant. The production of sulphuric acid (50° B.) in 1913 amounted to 3,538,980 tons. Under normal conditions approximately one-half of this production would be consumed in the manufacture of acid phosphate, making our annual output of this fertilizer material about 3,500,000 tons. The demand for sulphuric acid, however, is so strong at present for purposes other than the manufacture of fertilizer that the price of the acid has more than quadrupled, having advanced from $6 to $25 per ton. Not only are the fertilizer plants making less acid phosphate, but the price of this fertilizer material has nearly doubled during the past year, advancing from $7 to $13 per ton wholesale. Any further advance in the price of this material may result in stopping its sale, since it is doubtful if the increase in crops obtained from the usual applications of this material will pay for the cost of the fertilizer.

The potential sources of sulphuric acid in the United States are ample to produce more than double the present annual output. Few of the lead, zinc, or copper smelting companies using sulphid ores have sulphuric acid plants in connection with their smelters. The fumes discharged into the atmosphere by these smelters are sufficient to produce many thousands of tons of sulphuric acid daily. Under normal conditions, the limited market for the acid and the long haul necessary to reach the market have made it commercially impracticable to convert the fumes into sulphuric acid. It is entirely feasible to erect sulphuric-acid plants in connection with the copper, zinc, and lead smelters using sulphid ores. The concentrates of the ores may be roasted in furnaces independent of the smelting plants or the fumes may be delivered direct to the acid chambers.

The nitrogen situation is of less pressing concern. The nitrogenous materials entering into the manufacture of fertilizers in 1913 consisted of the following: Nitrate of soda, 70,000 tons; ammonium sulphate, 215,000 tons; cottonseed meal, 1,000,000 tons; dried blood, 40,000 tons; tankage, 100,000 tons; and fish scrap, 70,000 tons, which cost the farmer $48,800,000. The following table will show the difference in wholesale prices of these products between October, 1913, and October, 1915:

Material.	October, 1913.	October, 1915.
Nitrate of soda........per ton..	$46.00-$48.00	$59.00-$60.00
Ammonium sulphate........do....	62.00	68.60
Cottonseed meal........do....	31.94	33.77
Dried blood........per unit..	3.15	2.85
Tankage........do....	3.125 [a]0.10	2.30 [a]0.10
Fish scrap........do....	3.25 3.35 [a]0.10	3.25 [a]0.10

[a] Material is also a phosphoric acid carrier, for which 10 cents per unit was quoted.

It would appear from these figures that the United States is in a position of fortunate independence with regard to ammoniates, and the present disturbed conditions have affected the supply but slightly. There has been a certain increase in prices within the last few months, though the present price is but little, if any, higher than that experienced in former years in normal times. The increase in price of these materials can not be attributed exclusively to the present situation, since the trend of the price of nitrogen has been upward for a number of years. This is due to increasing demands made on the organic (vegetable and animal) ammoniates for feeding purposes as well as for fertilizers. The price of ammonium sulphate has risen in recent months, due largely no doubt to the great increase in the price of sulphuric acid, and since the various ammoniates are competitive with each other, this rise is largely responsible for the rise in the price of the others.

Only a small percentage (13 per cent in 1911) of the sodium nitrate imported from Chile enters into the production of fertilizers. Other industries, such as dyestuffs, general chemistry, explosives, etc., consume the balance. Of this small percentage the bulk is used in special brand fertilizers for trucking and greenhouse work. It therefore plays an unimportant part in the American fertilizer industry, and it is not believed that the recent rise in price of the Chilean nitrates has had any material effect upon the price of nitrogenous fertilizer materials.

SUGGESTIONS FOR RELIEVING THE SITUATION.

Little or nothing can be done to relieve the potash situation in time for this spring's planting. It is possible, if immediate steps are taken, that some relief may be offered later in the year. The most promising sources of a supply of potash in the near future in the country are the alunite deposits, mainly in the mountains of Utah, and the giant kelps of the Pacific coast from Lower California to Alaska.

Alunite.—Alunite, a mineral which exists in considerable quantities in Utah and neighboring States, contains about 11 per cent potash. It is decomposed by roasting at a temperature of about 700°, with the evolution of oxids of sulphur, and a residue consisting of alumina and potassium sulphate remains. From this residue the potash salt can be obtained readily by leaching and evaporation.

The process is simple. The fumes liberated can be used to manufacture sulphuric acid. Alumina resulting as a by-product will be suitable for the manufacture of metallic aluminum. One large company has begun the manufacture of potash from alunite and is reported to be making regular shipments of about 20 tons a day. It is understood that another large company is about to begin the erection of the necessary plant for the production of potash from this material.

Giant kelp beds.—An ample supply of potash for the needs of farmers can be obtained from the giant kelp beds. These beds have been surveyed by the Bureau of Soils and a report, accompanied by maps showing in detail their extent and location, recently has been issued.

For utilizing the kelp for the production of fertilizer three methods have been suggested. As a preliminary to any method for its utilization the kelp must be harvested, and this will require harvesting machines and, possibly, barges and tugs, according to the method employed. With the receipt of the wet kelp at the plant it may, first, be dried and ground. In this condition it contains all the salts originally present, which are mainly potassium chloride and sodium chloride. This material has mechanical properties which admit of its use in mixed fertilizers without further treatment. Kilns for drying the kelp and mills for grinding the dried material will be required with conveyors and transmission and the necessary storage space.

Second, since the freight on so large a bulk of material as the dried and ground kelp will constitute would be heavy, in practice it may prove more feasible to employ the method of destructive distillation, yielding purer salts and by-products. For this purpose a machine will be required of the general type of a continuous coke oven which will take the dried material and yield a charcoal and by-products. The charcoal contains the salts, mainly potassium, with some sodium, which may be recovered by leaching and subsequent evaporation. Among the by-products will be combustible gas, which can be used in the dryers, the nitrogen evolved as ammonia and recovered as ammonium sulphate, and tarry and other substances.

Third, the wet kelp may be cut into small pieces and treated in such a manner as to coagulate the organic matter so that it can be filtered. The resulting juices are then evaporated to produce potassium and sodium salts. The residue, containing small percentages of potash and nitrogen, is available for drying and use as a fertilizer. For this method vats and filter presses would be required.

Several commercial concerns have begun operations for the manufacture of potash from kelp. Only one of these, so far as known, is interested in the production for fertilizer purposes, and from the best data obtainable at this time this concern contemplates handling about 450 tons of wet kelp per day, producing about 50 tons of dried ground kelp per day.

The title to the kelp beds is in the hands of the States along whose shores they occur, and the lack of legislation permitting the definite control of given areas discourages the individual investor from entering the field of production. Furthermore, at the present price of potash, private investors entering the field could not be expected to dispose of their product for fertilizing purposes.

There are numerous problems connected with the possible development of an industry for the production of potash from kelp which need to be worked out, and these problems can not be satisfactorily solved except in a plant operating on a commercial scale. The Bureau of Soils has already conducted somewhat elaborate laboratory investigations of the problem, and is prepared to erect a plant at short notice designed to determine the best methods for harvesting and treating the kelp for the production of fertilizer ingredients. The solution of these problems would render the American farmer independent of foreign sources of potash and would mean the establishment of an important American industry. A plant capable of handling 500 tons of wet kelp per day and demonstrating the possibility of its utilization for fertilizer purposes will require an outlay of about $100,000. A further appropriation of $50,000 for additional equipment will permit experimentation with all three methods outlined above. In addition, $25,000 working capital would be required, with the provision that the products should be disposed of at the market price and the proceeds returned to the plant for operating expenses.

For the immediate relief of the phosphate situation, which is dependent upon the price of sulphuric acid, the production of an increased supply of acid is essential. Under normal conditions the supply of sulphuric acid in this country is fully adequate to meet the demand, and the private investor is loath to put money into a plant for the production of acid under conditions which are abnormal and which may cease at any time. There is, however, the possibility of the use of hydroelectric energy in the electric furnace for the treatment of phosphate rock to produce phosphoric acid. The Bureau of Soils has conducted some experiments on a laboratory scale and has secured data sufficient to warrant larger experiments on a commercial scale. It is now installing at its Arlington plant equipment to try out on a semicommercial scale methods for producing phosphoric acid and nitrogen products by electric-furnace methods. This process is only commercially feasible where cheap power can be secured. The ordinary price at which hydroelectric power in this country is sold makes the use of this power for fertilizer production by present methods out of the question. There is a possibility of securing water power in the Southern States in proximity to the southern phosphate beds. Most of the developed power in this region is, however, now being used to its full capacity. The Bureau of Soils has ascertained that power can be secured on some of the reclamation projects within reasonable distance from the western phosphate beds, and it is possible that cheap power might be developed within some of the national forests close to the phosphate deposits. There is also a possibility of securing cheap power in the neighborhood of the phosphate beds from private concerns now in operation. The Bureau of Soils is now endeavoring to secure some accurate data on this point. Since the consumption of fertilizers is chiefly in the South Atlantic States, in order to market the western phosphates it is essential that a concentrated product which is sufficiently valuable to stand the cost of transportation be manufactured. This would involve, therefore, the production of either double acid phosphate, phosphoric acid, or salts of phosphoric acid. The possibility of producing in one operation by electric-furnace methods both a phosphate and nitrogenous fertilizer is now under investigation.

A phosphoric-acid plant, exclusive of the hydraulic and hydroelectric equipment, located in the western fields, to test the possibilities of utilizing the western phosphate beds by the use of hydroelectric power would require an appropriation of approximately $100,000. For operating expenses for one year $25,000 would be required, with the provision that the products should be disposed of at the market price and the proceeds returned to the plant for operating expenses.

As a means of increasing the possible supply of nitrogenous fertilizing materials, the Bureau of Soils has investigated the possibility of utilizing the large amount of waste in connection with the salmon fish industry on the Pacific coast and has brought to the attention of the industry the advisability of utilizing this waste for fertilizing materials. The bureau has also investigated the utilization of garbage and other classes of city waste for the manufacture of fertilizer and recently has urged upon the cities the more thorough utilization of these materials. At the same time the bureau has been conducting investigations on a laboratory scale for the purpose of improving the present methods of rendering garbage and with a view to the development of other methods. Likewise the products prepared from city waste are being investigated in the laboratory to determine their fertilizer value.

The production of ammonium sulphate might be largely increased by the use of modern by-product ovens in the coke industry. Ammonium sulphate is the most important of the inorganic ammoniates and only a fraction of the possible production is being manufactured.

The suggested experiments in the use of hydroelectric power in connection with the western phosphates may also lead to important results bearing upon the nitrogen situation. It is a well-known fact that with cheap power the fixation of atmospheric nitrogen for the production of nitrates and cyanamid is commercially possible. The production of carbides, from which cyanamid is manufactured, is covered by a basic patent having eight years yet to run, and if the production of cyanamid is included in the process an operating arrangement with the owners of this patent would be necessary. It is, however, the hope of the Bureau of Soils to develop a process by which the production of nitrogenous products and phosphoric acid may be accomplished in one operation in the same electric furnace and in such a way as not to infringe this or other existing patents. The proposed plant outlined under the discussion of phosphates would have this ultimate object in view. Experiments on a laboratory scale have been conducted for some time by the bureau along this line. The importance of the development of a nitrate industry in this country, because of their use in the preparation of munitions, makes any investigation in this direction of the utmost importance to the country.

With the production of phosphoric acid and ammonia in one operation, the highly concentrated product, ammonium phosphate, can be manufactured, combining the phosphoric acid with a product approximately four times as valuable, which could be put on the market in the East at a reasonable figure despite the long freight haul.

Respectfully,

D. F. HOUSTON, *Secretary.*

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64TH CONGRESS
1st Session

SENATE

DOCUMENT
No. 263

NATIONAL DEFENSE

A SPEECH

DELIVERED BEFORE THE NATIONAL SECURITY
LEAGUE ON JANUARY 22, 1916
AT WASHINGTON, D. C.

BY

HON. HENRY CABOT LODGE
United States Senator from Massachusetts

PRESENTED BY MR. WEEKS
JANUARY 28, 1916.—Ordered to be printed

WASHINGTON
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1916

ADDRESS OF SENATOR HENRY CABOT LODGE.

Mr. Chairman, ladies and gentlemen, I am deeply interested in the purpose for which this National Security League has been formed. I believe your meeting here can not fail to do good in molding and making public opinion. But I think you will agree with me that the most important thing is that this league should so work and should use its power in such a way as to bring practical results in the shape of legislation for national defense. [Applause.] Even were I master of eloquence, I should not attempt it to-night. I merely wish to offer to you a few practical suggestions drawn from some years of observation in Washington.

There are two kinds of questions which it is extremely difficult to argue. One is where the question is new, doubtful, intricate, and complicated. The other is when a question is so simple that it is difficult to understand how there can be any difference of opinion in regard to it. [Laughter.] The subject of national defense belongs, to my mind, in the latter class. [Applause.] The proposition, as I should put it, is something like this: Every nation should have sufficient military and naval defense to maintain its own peace and security. This Nation has not such defense. Therefore it is the duty of this Nation to look to it that such provision is made. It appears to me that this little syllogism is so simple and so obvious that almost anyone with the sight of an average mole could see it. And yet I know there is a great deal of opposition, in a certain way, to the proposition.

I quite agree that it is not a party question. I should be sorry to think that national defense could be a party question. But I will say this that if those gentlemen, of either party or of both parties, who are now standing in the way of national defense do not look to themselves a party will arise somewhere which will carry national defense to completion. [Applause and cheers.] I am not going to enter into details. I shall not attempt to argue that little syllogism which I just ventured on as it might be argued. I could easily keep you here well over Sunday if I should enter upon details relating to either branch of the service. All I desire now is to call your attention to certain facts vividly illustrating what the present condition is and just where you want to go to work. The first thing is to know the facts. There is fortunately no difficulty in knowing the facts about the Army. We have a Secretary of War to whom as an American I feel under great obligations, because he has told us the facts. [Applause.] He has laid his cards on the table. I do not know whether the scheme that he proposes, and which is known as his plan, is the ideally perfect plan to his mind—I very much doubt it—or whether, like other men charged with great responsibility, he is laboring for the best that he can hope to get. [Applause.] But, above all things, he is telling us all about the War Department. And what is it that we know, when all is told? That we have no Army sufficient to defend the United States. We can not build coast defenses to protect 10,000 or 12,000 miles of coast; that is an absurdity. We can protect, we have partially protected, perhaps, some few great ports. But the defense of the United States by land must lie in a large mobile force. We have no such force. I for one believe that the recommendation of Gen. Leonard Wood and of the War College experts, that we should have a Regular Army to start with of 210,000 men, is right; that that is the least number. [Applause.]

I believe that behind that Regular Army there should be a large reserve mobile force. Mr. Putnam has told you, what we all know, I think, that in one foreign country, at least, plans have been made with a view to landing in this country, and that in 40 days they could land an army of 360,000 men, thoroughly equipped. Now, the only way to meet such a force is to have a mobile army to meet them wherever they land. You can not, I repeat, have fortifications everywhere. You must have your mobile force. Last year our mobile force, all Regulars, was 24,000 men. You ought to have an army outnumbering by at least two to one any hostile force that can be landed. How, as a preliminary, are you going to find out where the enemy is, and where they are going to land? We have no aeroplanes. How are you going to move your men and supplies once you leave the railroads? You have not even got motor trucks in your Army. We are deficient in field artillery. We have no large reserves of ammunition upon which success in war now depends. Above all, I repeat, you have not got the men. You ought to have at least a million men who can at any moment be called to the colors as a reserve. [Applause.] Whether it can best be done by the federalization of the militia—a matter of some constitutional difficulty—or whether, as I believe it must be eventually done, by a national force, it ought to be, it must be, done. Every citizen in a democracy ought to have the same rights and the same duties. [Applause.] We all ought to bear the burdens equally, the burdens of taxation and of military service. The universal liability to military service does not, however, necessarily mean that we must carry out the Swiss system to the fullest extent, and have an army of twelve or fifteen millions, but with that universal liability we must have and we can get the million men we want.

We have not got them now. We have practically no military defense on land. It is an ugly thing to say, but we could be conquered to-morrow by any nation able to land on our coast 300,000 to 400,000 men thoroughly equipped in the best modern way. We are as brave a people as live, as the mayor of New York so justly said, but bravery unarmed means useless sacrifice of the best men. We are ready to fight, but an unarmed people can not fight a fully armed and equipped body of 400,000 men. And how are the bravest people in the world to spring to arms when they have no arms to spring to? [Applause and laughter.] That is why I say that we are defenseless by land, and defense we must have, and we must have it at once.

I now come to the Navy. Let me repeat that I speak in no party sense, and that I do not regard this as a party question; but I have been in Congress more years than I am eager to confess, and I think that I know Congress fairly well, and where the blame rests for our not being defended as we ought to be at this moment. Administrations come and go. With scarcely an exception let me say that every Secretary of War and every Secretary of the Navy whom I have known has tried—some more vigorously, some more successfully, than others, of course, but they have all tried—to build up the forces intrusted to his charge. The responsibility for not being defended to-day as we ought to be lies at the door of Congress. [Applause.] I am ready to take my blame with the rest, but I know where the blame lies. It is no new thing. When Washington was on the eve of final victory, just before the siege of Yorktown, perhaps you do not recall what Congress were proposing to do? They were proposing at that moment to reduce the Army. Some things change and others do not. [Laughter and applause.]

I served some years ago on the Naval Committee of the House of Representatives. I am at this moment a member of the Senate Committee on Naval Affairs, and ever since I have been in Washington I have tried to inform myself in regard to the Navy. I do not know as much about it as my friend Mr. Padgett, chairman of the House Naval Committee, who, I think, has as thorough a knowledge of naval affairs as any man in public life—more thorough, indeed. [Applause.] I have had the honor to serve with him on conference committees, and I know the extent of his knowledge. Yet even in his presence I venture to say that I know something about the Navy, but I am far from knowing it all, and the country knows very little. We see a display of naval ships in the Hudson River, and the people go home with a comfortable feeling that they have got a great and splendid Navy, because they do not at all understand what a really complete and efficient navy is. During the Spanish War there was a New England port, which shall be nameless, one of many where they felt that they were in danger of attack from the Spanish cruisers. It was not exceptional, because that feeling existed in all Atlantic ports, south as well as north, and in common with many other ports it wanted protection. I labored to get them protection. I finally secured for this particular port an old monitor of the Civil War, with one large smoothbore gun. It was towed down to that port with some difficulty and anchored in the harbor, and they were perfectly satisfied. [Laughter.] The moral is that a navy may have some very fine ships and yet be wholly inadequate as a fighting force, and it is not to be expected that the people will understand the real condition of the Navy unless it is honestly explained to them.

The difficulty of obtaining accurate knowledge is shown by the fact that those who are most immediately charged with the care of the Navy are guilty of mistakes. The President said in his message:

> If this full program should be carried out, we should have built or building in 1921, according to the estimates of survival and standards of classification—

I call your attention to that language—

> followed by the General Board of the department, an effective Navy consisting of 27 battleships of the first line, 6 battle cruisers, and 25 battleships of the second line.

The Secretary of the Navy in his annual report says:

> If this program is carried out, accepting the General Board estimates of survival for present vessels—

That is 20 years; some say 15, but we will take it at 20 as the life limit of a modern battleship—

the Navy will be composed of the following vessels, built or building, in 1921: Battleships, first line, 27; battle cruisers, 6; battleships, second line, 25.

There can be no mistake about the battle cruisers, because we have none, and those six are in the President's program, and there is no item of his program which is better than that. Battleships of the first line, 27—that includes 17 ships now built or building, and 10 according to the program; but the 25 battleships of the second line puzzled me. I wrote to the Secretary of the Navy and asked him if he would give me the names of the battleships of the second line. He replied, very kindly, that I could find them in the report of the General Board annexed to his report. I wrote back to him that I had already read that appendix, but that the report of the General Board did not seem to me to agree with his statement, and that was why I asked for the names of the ships. I have had no answer to this last letter. [Laughter.]

But here is what the General Board said, to which the Secretary referred me:

Dreadnaughts of the first line, 17.

Then there are the 10 added under the program, making a total of 27; correct.

Dreadnaughts of the second line—

I am reading from the report of the General Board now—

Dreadnaughts of the second line, 13.
Superannuated dreadnaughts of the third line—

Ships that will then be over 20 years old, each one—

nine.
Harbor-defense battleships, 3—

The *Indiana*, the *Massachusetts*, and the *Oregon*, authorized in 1890, commissioned in 1895.

The 25 of the second line as given by the President and the Secretary of the Navy were made up of 13 put in that line by the General Board, of 9 excluded from that line by the General Board because they were not in accordance with their estimates of survival, and of 3 now more than 20 years old, which the General Board rank as only fit for harbor defense.

I am merely calling attention, by giving you these varying statements, to some of the difficulties in the way of getting at facts.

Now, take the submarines. I could talk about the submarines all night. [Laughter.] One hundred and fifty-seven in 1921 was the number given us by the President and the Secretary. Dear old boats some of them will be then. That 157 includes every submarine that has been built from the beginning starting in 1902. Some of them are absolutely useless now, and everybody knows it. There is not a seagoing submarine among those now existing. I believe *F-4*, which sank in the harbor of Honolulu, is no longer carried on the list. [Laughter.] But it was carried on the list as late as last August.

Then there is the shortage of men. The Secretary has sent in the report of Admiral Fletcher, made on the 15th of August last, and in that report he describes the shortage of men. At the June inspection one division was short 1,350 men. Mine layers were 25 per cent short in their complement. The department has reduced the complement of destroyers by 25 per cent. It is reported that at the battle-efficiency inspection of the *Utah* a chief petty officer was in charge of one turret and an ensign of 1914 in charge of another. The *Florida* was short 29 officers, the *Utah* 28, the *Michigan* 21, and the *South Carolina* 16. A pay clerk and a yeoman were in charge of the plotting room, doing the work which should have been done by commissioned officers.

Admiral Fletcher, the commander in chief, says that such reports are of frequent occurrence, and in his own conclusions points out specifically that the fleet needs more officers and more men; that whatever be the number of men available for complements of the ships in the active fleet should be kept full, and that if ships can not be kept fully in commission with full complement they should be put in reserve.

He says, also, in this same report, that we need mine-laying and mine-sweeping vessels. He gives a comparison between the *Delaware* and the *Bellerophon* and the *Helgoland*, which I need not go into, as to the number of officers. He refers to the unsatisfactory condition of the submarines, their limitations of mobility, the lack of air craft, the lack of any radio direction finder, the lack of mine-laying and mine-sweeping vessels.

I need not go on. The report is worthy your consideration if you want to get at the facts and learn how absolutely inadequate and how far from high efficiency our Navy is. We have no scouts. We have no fast battle cruisers. The *Blucher*, which was sunk in the North Sea, was sunk because she was the slowest of the German ships. She was faster than any ship in our Navy! We need battle cruisers; we need scouts; we need aeroplanes, and we need speed in supplying these deficiencies. [Great applause.]

The Secretary said the other day before the House committee, if he was correctly reported, that it took three years to build a battleship. Let me ask your attention—these are dry facts—to the history of the two last superdreadnaughts authorized, battleships *Nos. 43* and *44*, authorized on March 3, 1915. Congress did its duty, let me say, as to those two battleships. The Secretary of the Navy decided to build these ships at New York and Mare Island. It is now nearly a year since the authorization. The material for *No. 43*, to be built at the New York Yard, has been ordered, I believe, and is in process of being assembled. [Laughter.] The *California* is on the ways at the New York Navy Yard, however, and is not expected to be off the ways before September or October. I take the Secretary's own statement. Therefore *No. 43*, authorized March 3, 1915, can not have her keel laid before that time—18 months after her authorization!

It may be possible that we can not build a battleship in two years, as England and Germany do; but we can build it in three years, and we ought to be able to get rid of those 18 months which make it four and a half years for an American battleship.

No. 44 is to be built at Mare Island. There are ways there, but they are not large enough to take a superdreadnaught, and must be extended. There is not money enough to do it. Congress must either appropriate money especially for that purpose or authorize the Secretary to use some of the money appropriated for the ships. I do not think this authority has yet been given. It may have passed the House.

Representative PADGETT. No, sir; it is pending in the House. It has been reported by the committee.

Senator LODGE. It is pending in the House, then. The ship now on the ways, which it will be necessary to have off the ways before the superdreadnaught can be begun, will probably be launched in September, 1916. If the money is authorized for the extension of the ways—and I hope and believe it will be—that can be accomplished before the launching of the ship now on the ways; but if the money is not obtained there will be still further delay.

It is said on good authority that England and Germany have been building seagoing submarines of 800 or 1,000 tons, capable of going around the north of England or into the Mediterranean, at the rate of one a month. We then hear flourishing statements about our great seagoing submarines. Yes; three have been authorized. but we have not got them. I am glad they are authorized, but I want them in the water, where they can be used, and not simply floating harmlessly in acts of Congress.

The *Schley* was the first large submarine authorized. It was authorized on the 30th of June, 1914. The contract was let the following March—March of 1915. In the bulletin of January 10, 1916, it appears that nothing has been done upon her yet. How long do you thing is the contract time for the *Schley*, the first of our seagoing submarines? I was astonished to find out. Thirty-six months—three years! She is not contracted to be delivered until March, 1918; and if we want submarines, we want them now! [Applause.] As for the two authorized last year, nearly a year ago—*60* and *61*—nothing has been done about them at all. These are all mere illustrations. But they are the facts. Do not forget that the worst thing that can befall us is to be deceived by others or deceive ourselves as to our Navy.

The House Naval Committee is hard at work preparing its bill, having the valuable hearings which it is necessary to have, and working as hard and intelligently on the bill as it is possible, I know. The House Military Committee, unless I am misinformed, is considering a bill which appropriates for exactly the same Army that we have now. The Senate Military Committee is holding hearings and is doing excellent work. It has had before it Gen. Wood, Gen. Carter, and other officers of the Army, who are telling the committee and telling the country the exact truth and what the country needs. [Applause.] That committee is preparing good work. The Senate Naval Committee is engaged in the great and burning question of building an armor plant. [Laughter.]

Now, I recognize that perhaps it may be necessary by and by to have an armor plant. I am very doubtful about it at any time, but I am certain that we do not want to put ten millions into an armor plant now. What we want now is ships and men and submarines and aeroplanes. [Great applause.] I know there is a great argument behind the armor plant. I know that if the armor plant is not built it is possible—perhaps probable, but certainly possible—that some great industrial plant in private hands may make some money out of the manufacture of armor. Nevertheless, it seems to me that it is more important to keep the enemy from our shores than to devote our attention to preventing Americans from making money. [Applause.] I know well the immense time and thought which has been given to that question of preventing Americans from making money [laughter], and I do not underrate its importance; but I think that at this moment what we want to do is to give the Navy the things of which it is in such sore need. The Navy is the first line of defense. [Great applause.] While we control the seas, the United States is safe. We have two great coasts to defend. I do not quite agree with my friend Mr. Putnam about Chicago's indifference to New York and Boston. As an American, the knowledge that San Francisco or New Orleans or Chicago is in danger from an enemy or damaged by a foe comes just as near home to me as if Boston were attacked. [Great applause.] I was born in Boston. I have lived there. I love it. But there is something I love more, and that is the whole great country; and any enemy who touches any part of that country touches me. [Great applause.]

Now, a word as to the sources of the opposition which you will have to meet, which you will have to deal with, representing as you do the people, the voters of this country. It is of various sorts in Congress. There are some who think that the first thing to be done is to put the Government into business in every direction—into munitions, into armor, into everything—resting, as I say, on the great principle that if they do not some private American citizen may make money. Then there are those who want to spend the people's money elsewhere, to scatter it through the country in the name of good roads, to improve rivers and harbors, and to build public buildings. You will see the newspapers refer to it in their graceful way [laughter] as the "pork barrel"; and you would suppose, from what you read in the newspapers, that all this was due to the natural depravity of Congressmen and Senators—that they wanted to have public buildings and river and harbor appropriations for unnavigable streams and impossible harbors, because they themselves were naturally bad and rejoiced in evil for its own sake. I assure you that is a very great mistake. The amount of pleasure—even among those Congressmen and Senators who are fond of art—the amount of architectural pleasure that they derive from a post office in a country town [laughter] is not enough to govern their votes. They want those things for the very simple and human reason—I know; I have been one of them for a long time—that they think their constituents want them, and they think procuring them means votes. And just as long as Congressmen and Senators, or any considerable number of them, think there are more votes in river and harbor appropriations and public buildings appropriations than there are in appropriations for the national defense, they will continue to give the preference to the former. [Applause.]

That seems a harsh thing to say. The truth is not infrequently both harsh and unpleasant. I know there are many men in both Houses who will vote for great appropriations for national defense without a thought as to whether it is going to benefit them personally or not. [Applause.] I dare say there are many men in both Houses who would vote for appropriations for rivers and harbors and public buildings without a thought as to whether it would benefit them or not, although I must confess that that proposition is perhaps not quite so certain as the other. [Laughter.] But if you would have Congress take up national defense, both for the Army and for the Navy, as you think it ought to be taken up, you will let them understand that there is a great body of voters in this country, north, south, east, and west, who are determined that their country shall be defended!

I have no doubt that the great mass of the American people wish their country to be put in a state of proper defense. You all believe so. Bring this fact home, then, to those who represent them. Make the Senators and Congressmen understand it. Begin at the primary and go with them to the polls in support if you can, in opposition if you must, and you will be surprised at the rapidity of the educational process, and you will get plenty of support at the Capitol. [Applause.] But you must come down to that practical side, as every great question has to come to it finally. You must demonstrate to the Representative or the Senator that the people who send him here want this thing done; and when the American people make it clear to the House and Senate that they are in earnest about national defense you will have it, and you are not likely to get it much sooner in a proper and sufficient way. [Applause.]

I have taken much more time than I intended, and I only desire to say one word in conclusion. No one can think that provision for national defense is more essential, more vital, than I do. But there is a side to it that goes even deeper. It has been alluded to by the mayor of New York, and I can do little more than repeat his words; but they are words which can not be too often repeated. In this question of national defense lies a test of democracy, whether it is worthy to live, whether it has the foresight, the self-control, the spirit of unity which will lead it to take these precautions which it must take if it is to survive at all in a world so uncertain and so perilous as this.

We covet no one's territory. We seek no adventures. We have an immense domain of our own, still to be developed. We desire, if we can, to distribute the riches of our heritage so that all shall benefit and not merely a few. We would fain, if we could, turn our attention to the needs of the great classes of our own people to whom life is hard. We would like to do something to help old age. We would like to improve in every way that we can the condition of our own people. What is necessary for us in order to achieve that which we desire? Peace and security. They speak of the Monroe doctrine as a foreign policy. It is not a foreign policy; it is a mere law of self-preservation. We wish to be at peace and we wish to be secure.

Now, these being our desires, have we made our acts and our policies correspond with them? You wish to have peace and security. Have you done what is necessary to make sure that you and those who come after you will have peace and security? You certainly have not done it yet. You lie open to the world, rich, tempting, an easy prey to the armed. There are those who say, "Exhausted Europe will never attack us." That is the argument of the "didn't-know-it-was-loaded" gentlemen who add so largely to the bills of mortality. Not attack us! There is no nation on earth so dangerous as a nation fully armed and bankrupt at home. [Applause.] The only time in our history when we were fully prepared was at the close of the Civil War. We had a great veteran Army. We had the largest fleet in existence. We had a debt of $3,000,000,000, which looked enormous then. Our currency seemed to be hopelessly depreciated. Financially speaking, we were bankrupt. Yet there never was a moment in the history of the United States when she was so dangerous to her neighbors as in 1865.

You can always get money, apparently, in this world for powder and shot. War ended in Europe, a nation there armed to the teeth, crippled financially, with large claims growing out of Mexico; shall I go on? Do you think that presents a safe condition? Such a condition is highly dangerous. No nation is safe while the world is as it is; and our duty is to make sure of our peace, our security, our freedom. Is the ideal of democracy merely to accumulate money, to live in comfort, to amuse ourselves from day to day? Is that the true ideal of democracy? Not to my mind. I believe that the ideal of democracy is written in the American Revolution and in the Civil War; the great ideal which Abraham Lincoln typified, that life, that wealth, that everything was as nothing compared to liberty and freedom; and that this Nation should be free and remain free; that we should be able to continue the democracy which we have set up. And now, with other democracies fighting for their lives, are we to remain still and do nothing to preserve our own?

In the long vista of the years to roll,
  Let me not see my country's honor fade;
Oh! let me see our land retain its soul!
  Her pride in Freedom, and not Freedom's shade.

[Great applause.]

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64TH CONGRESS } SENATE { DOCUMENT
1st Session } { No. 264

REPORT OF THE

NATIONAL ACADEMY OF SCIENCES

FOR THE YEAR

1915

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

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LETTER OF TRANSMITTAL.

NATIONAL ACADEMY OF SCIENCES,
January 27, 1916.

The Honorable THOMAS R. MARSHALL,
Vice President of the United States,
Washington, D. C.

SIR: I have the honor to transmit to you herewith the annual report of the president of the National Academy of Sciences for the year ending December 31, 1915.

Very respectfully,

ARTHUR L. DAY,
Home Secretary.

ACT OF INCORPORATION.

AN ACT To incorporate the National Academy of Sciences.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Louis Agassiz, Massachusetts; J. H. Alexander, Maryland; S. Alexander, New Jersey; A. D. Bache, at large; F. B. Barnard,[1] at large; J. G. Barnard, United States Army, Massachusetts; W. H. C. Bartlett, United States Military Academy, Missouri; U. A. Boyden, Massachusetts; Alexis Caswell, Rhode Island; William Chauvenet, Missouri; J. H. C. Coffin, United States Naval Academy, Maine; J. A. Dahlgren, United States Navy, Pennsylvania; J. D. Dana, Connecticut; Charles H. Davis, United States Navy, Massachusetts; George Engelmann, Saint Louis, Missouri; J. F. Frazer, Pennsylvania; Wolcott Gibbs, New York; J. M. Gilless,[2] United States Navy, District of Columbia; A. A. Gould, Massachusetts; B. A. Gould, Massachusetts; Asa Gray, Massachusetts; A. Guyot, New Jersey; James Hall, New York; Joseph Henry, at large; J. E. Hilgard, at large, Illinois; Edward Hitchcock, Massachusetts; J. S. Hubbard, United States Naval Observatory, Connecticut; A. A. Humphreys, United States Army, Pennsylvania; J. L. Le Conte, United States Army, Pennsylvania; J. Leidy, Pennsylvania; J. P. Lesley, Pennsylvania; M. F. Longstreth, Pennsylvania; D. H. Mahan, United States Military Academy, Virginia; J. S. Newberry, Ohio; H. A. Newton, Connecticut; Benjamin Peirce, Massachusetts; John Rodgers, United States Navy, Indiana; Fairman Rogers, Pennsylvania; R. E. Rogers, Pennsylvania; W. B. Rogers, Massachusetts; L. M. Rutherford, New York; Joseph Saxton, at large; Benjamin Silliman, Connecticut; Benjamin Silliman, junior, Connecticut; Theodore Strong, New Jersey; John Torrey, New York; J. G. Totten, United States Army, Connecticut; Joseph Winlock, United States Nautical Almanac, Kentucky; Jeffries Wyman, Massachusetts; J. D. Whitney, California; their associates and successors duly chosen, are hereby incorporated, constituted, and declared to be a body corporate, by the name of the National Academy of Sciences.

SEC. 2. *And be it further enacted,* That the National Academy of Sciences shall consist of not more than fifty ordinary members, and the said corporation hereby constituted shall have power to make its own organization, including its constitution, by-laws, and rules and regulations; to fill all vacancies created by death, resignation, or otherwise; to provide for the election of foreign and domestic members, the division into classes, and all other matters needful or usual in such institution, and to report the same to Congress.

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[1] The official list of members gives the name of F. A. P. Barnard.

[2] The official list of members gives the name of J. M. Gilliss.

SEC. 3. *And be it further enacted,* That the National Academy of Sciences shall hold an annual meeting at such place in the United States as may be designated, and the academy shall, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art, the actual expense of such investigations, examinations, experiments, and reports to be paid from appropriations which may be made for the purpose, but the academy shall receive no compensation whatever for any services to the Government of the United States.

Approved, March 3, 1863.

AMENDMENTS.

AN ACT To amend the act to incorporate the National Academy of Sciences.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to incorporate the National Academy of Sciences, approved March third, eighteen hundred and sixty-three, be, and the same is hereby, so amended as to remove the limitation of the number of ordinary members of said academy as provided in said act.

Approved, July 14, 1870.

AN ACT To authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the National Academy of Sciences, incorporated by the act of Congress approved March third, eighteen hundred and sixty-three, and its several supplements, be, and the same is hereby, authorized and empowered to receive bequests and donations and hold the same in trust, to be applied by the said academy in aid of scientific investigations and according to the will of the donors.

Approved, June 20, 1884.

AN ACT To amend the act authorizing the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes.

Be it enacted by the Senate and House of Repersentatives of the United States of America in Congress assembled, That the act to authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes, approved June twentieth, eighteen hundred and eighty-four, be, and the same is hereby, amended to read as follows:

"That the National Academy of Sciences, incorporated by the act of Congress approved March third, eighteen hundred and sixty-three, be, and the same is hereby, authorized and empowered to receive, by devise, bequest, donation, or otherwise, either real or personal property, and to hold the same absolutely or in trust, and to invest, reinvest, and manage the same in accordance with the provisions of its constitution, and to apply said property and the income arising therefrom to the objects of its creation and according to the instructions of the donors: *Provided, however,* That the Congress may at any time limit the amount of real estate which may be acquired and the length of time the same may be held by said National Academy of Sciences."

SEC. 2. That the right to alter, amend, or repeal this act is hereby expressly reserved.

Approved, May 27, 1914.

ANNUAL REPORT

OF THE

NATIONAL ACADEMY OF SCIENCES.

The year 1915 is conspicuous in the record of the activities of the academy because of the establishment at the beginning of the year of a monthly scientific journal called the Proceedings of the National Academy of Sciences. The undertaking was entered upon without the aid either of an endowment or of a government subvention, but through voluntary subscription by members and friends under the pressure of an acute need for a publication broad enough in scope to include all the interests of the academy, and one which should offer an opportunity for the prompt and accurate announcement of the scientific discoveries of members and others.

It is not the purpose of the proceedings to include long or detailed papers which appear more appropriately in the special journals conducted by scientific societies, but rather to supplement this detailed record, which is prepared usually for restricted circulation within the branch of science in which it originates, with an early general announcement of the essential features and results of important investigations both in the interest of scientific progress and of general knowledge.

It is particularly important, for example, that the results of American research should be brought to the attention of foreign investigators both in Europe and in South America, partly for the purpose of avoiding duplication of effort and partly in order to secure appropriate recognition of the great increase in the productiveness of American research during recent years. The National Academy, through its official affiliation with the representative scientific organizations of other nations and its close relations with a great number of unofficial foreign societies, is obviously in a peculiarly favorable position to disseminate the results of American scientific work, if indeed it is not definitely the duty of the academy to do so. No appropriate organ for the distribution of concise, authentic reports covering the whole broad field of American scientific studies has existed in the United States hitherto, and American research in consequence is much less well known abroad to-day than it is entitled to be.

There is already evidence that the present effort will be successful in correcting this situation. The mailing list of the Proceedings already includes more than 900 foreign institutions of learning and research, distributed in all parts of the world, in addition to its American correspondents. To this great body of scientific workers the academy has presented, through its Proceedings, this first year which has just closed, 166 papers. To the academy this is a duty long unfulfilled rather than a privilege, perhaps, but its value to American scientific research is already clearly demonstrated and is likely to increase rapidly in this and following years.

MEETINGS OF THE NATIONAL ACADEMY.

During the year 1915 the academy held two stated meetings, the annual meeting in April at Washington and the autumn meeting in November, at New York City.

ANNUAL MEETING.

The sessions were held in the United States National Museum and in the Oak Room of the Raleigh Hotel, Washington, D. C., April 19, 20, 21, 1915. Fifty-eight members were present, as follows: Becker, Boltwood, Britton, Bumstead, Cattell, Chittenden, Clark (W. B.), Clarke (F. W.), Clarke (J. M.), Conklin, Coulter, Crafts, Cross, Dall, Davenport, Davis, Donaldson, Fewkes, Frost, Goodale, Hague, Hale, Harper, Harrison, Hayford, Hillebrand, Holmes, Howell, Jennings, Loeb, Mall, Meltzer, Mendel, Merriam, Michelson, Moore, Morgan, Morley, Nichols (E. L.), Noyes (A. A.), Noyes (W. A.), Osborn (H. F.), Osborne (T. B.), Parker, Pickering, Pirsson, Ransome, Reid, Remsen, Schuchert, Scott, Smith (E. F.), Walcott, Webster, Welch, Wheeler, White, Woodward.

BUSINESS SESSIONS.

The president announced that the preparation of biographical memoirs of deceased members had been assigned as follows:

Bowditch, Henry P., to Walter B. Cannon,
Davidson, George, existing biography approved.
Gould, Benjamin Apthorp, to George C. Comstock.
Mitchell, Henry, to John F. Hayford.
Mitchell, Silas Wier, to William H. Welch.
Chandler, Seth Carlo, to William L. Elkin.
Peirce, Benjamin Osgood, to E. H. Hall.
Holden, Edward Singleton, to W. W. Campbell.
Hill, George William, to E. W. Brown.
Peirce, Charles Sanders, to J. McK. Cattell.
Gill, Theodore Nicholas, to William H. Dall.
Minot, Charles Sedgwick, to F. P. Mall.
Billings, John Shaw, to Fielding H. Garrison.

The president announced the death, since the autumn meeting, of one foreign associate:

Auwers, G. F. J. Arthur, elected 1883, died January 24, 1915.

REPORTS OF THE PRESIDENT AND THE TREASURER.

The reports of the president[1] and of the treasurer[2] for 1914, as transmitted to the Senate of the United States by the president of the academy, were presented in their printed form and approved.

REPORT OF THE HOME SECRETARY.

The President of the National Academy of Sciences.

SIR: I have the honor to present the annual report of the home secretary of the National Academy of Sciences for the year ending April 21, 1915.

The memoir of the National Academy of Sciences, volume 12, part 1, and bearing the title, "Monograph of the Bombycine Moths of North America," by A. S. Packard, edited by T. D. A. Cockerell, has been published and distributed to the members, foreign associates, institutions, and reference libraries; volume 12, part 3, of the memoirs, entitled, "The Turquois," by Joseph E. Pogue, has also been published and distributed; part 2 of this same volume entitled, "Variations and Ecological Distribution of the Snails of the Genus Io," by Charles C. Adams, has received final consideration, and is now waiting to be bound at the Government Printing Office; the memoir forming volume 13, being "A Catalogue of the Meteorites of North America," by Oliver C. Farrington, only awaits press work and binding before it is issued.

The biographical memoirs of John Wesley Powell, Charles A. Schott, and Miers Fisher Longstreth have been published. The publication of the memoir of Peter Lesley, by William M. Davis, has been approved by the committee on publication, and the biography of Henry Morton, by Edward L. Nichols, has been printed and awaits the portrait.

Three members have died since the last annual meeting: Theodore Nicholas Gill, on September 25, 1914, elected in 1873; Charles Sedgwick Minot, on November 19, 1914, elected in 1897; and Henry Lord Wheeler, on October 30, 1914, elected in 1909.

Of our foreign associates, Eduard Suess died on April 26, 1914, elected in 1898; August Weismann died on December 5, 1914, elected in 1913; Hugo Kronecker died on June 6, 1914, elected in 1901; G. F. J. Arthur Auwers died on January 24, 1915, elected in 1883.

There are 134 active members on the membership list, one honorary member, and 43 foreign associates.

ARTHUR L. DAY,
Home Secretary.

REPORT OF THE DIRECTORS OF THE BACHE FUND.

The serious illness of Dr. Charles S. Minot, the chairman of the board of directors of the Bache fund, made it difficult to carry on the work of the board for several months. His death in November last left a vacancy hard to fill as he was most conscientious in the performance of his duties. After careful consideration the two remaining members of the board elected Prof. Ross G. Harrison the third member and he accepted. In turn the board elected the undersigned chairman.

Since the last annual meeting of the academy the following appropriations have been made:

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[1] Report of the National Academy of Sciences for the year 1914, pp. 11-56.

[2] Idem, pp. 57-65.

No. 182. W. C. Kendall. $600. April 30, 1914. Toward the expenses of illustrations in color and incidental expenses in connection with Part II (*Salmonidæ*) Fishes of New England to be published by the Boston Society of Natural History.

No. 183. C. G. Abbot. $250. June 29, 1914. To complete and test on Mount Wilson in California an apparatus consisting of a concave cylindric mirror of about 100 square feet surface adapted to heat oil to circulate through a reservoir containing ovens and water pipes, and thereby to utilize solar radiation for cooking and for heating water for domestic purposes.

No. 184. P. W. Bridgman. $500. September 14, 1914. To continue the work on high pressures, especially to investigate the phase changes brought about in various substances by very high pressure.

No. 185. Robert W. Hegner. $160. December 26, 1914. To determine the visible changes that take place during the differentiation of the germ cells in the embryos of hermaphroditic animals, and to discover, if possible, the cause of these changes.

No. 186. J. Voûte. $800. February 9, 1915. For the determination of parallaxes of southern stars by transits. The Bache fund has heretofore granted $1,000 for this research. It is conducted at the Royal Observatory, Cape of Good Hope, wholly at the expense of Mr. Vûote, except for these grants.

No. 187. H. H. Lane. $500. April 14, 1915. To make a comparative study of the embryos and young of various mammals in order to determine, by physiological experimentation and morphological observations, the correlation between structure and function in the development of the special senses.

IRA REMSEN,
Chairman.

APRIL, 1915.

REPORT OF THE TRUSTEES OF THE WATSON FUND.

The will of the late James Craig Watson provided "for the promotion of astronomical science," but he expressed the wish that a medal should be given and that tables should be prepared of the motions of all the planets discovered by him. This last wish has now been carried out in a most satisfactory manner by Prof. A. O. Leuschner, so that the income which has been used for this purpose during the last 14 years is now available for the promotion of astronomical science in other directions.

The undersigned accordingly recommend the following votes:

Resolved, That the Watson medal and the sum of $100 be awarded to Prof. Armin Otto Leuschner, for the skill and ability which he has shown in supervising the preparation of tables of the Watson asteroids, involving original methods, and leading to results of much value to celestial mechanics.

Resolved, That the sum of $500 from the income of the Watson fund be appropriated to Prof. John A. Miller, director of the Sproul Observatory, for measuring plates already taken for the determination of stellar parallaxes.

Resolved, That the sum of $300 be appropriated from the income of the Watson fund to Mr. John E. Mellish, to enable him to undertake observations at the Yerkes Observatory.

E. C. PICKERING, *Chairman.*
W. L. ELKIN.
EDWIN B. FROST.

APRIL 2, 1915.

MARCH 25, 1915.

Prof. E. C. PICKERING,
*Chairman Watson Trustees of the National Academy of Sciences,
Harvard College Observatory, Cambridge.*

DEAR SIR: I beg to submit the following statement of the condition of the Watson work on March 1, 1915. This is a continuation of the reports submitted March 21, 1912; April 5, 1913; and April 1, 1914.

1. A year ago I reported that—

(*a*) In addition to the 12 planets published, 3 planets, (79) Eurynome, (150) Nuwa, and (121) Hermione were ready to be put into manuscript form.

(*b*) That (132) Aethra would be assigned to some other graduate student unless Mr. Champreux gave assurance that he would make progress. You will remember that this planet is not part of our list, as it is considered lost.

(*c*) That (175) Andromeda was completed on the basis of our revision of von Zeipel's tables.

(*d*) That the perturbations (106) Dione of the Hecuba group were developed and that it remained to make comparison between theory and observation.

(*e*) That (100) Hecate and (104) Clymene required a comparison between theory and observation, and a correction of the elements.

(*f*) That of the remaining two planets, in the case of (94) Aurora, a complete revision of the perturbations which had originally been done by Hansen's theory would be required on the basis of von Zeipel's theory, and that no work had as yet been undertaken on (168) Sibylla, which also belongs to the Hecuba group.

In making report at this time I shall refer to each of the items that was mentioned as incomplete in my last report under (*a*) to (*f*).

2. (*a*) and (*c*). These four planets were reported as entirely completed last year.

(*b*) (132) Aethra. Mr. Champreux has done nothing further, and Mr. W. D. Alter has recently undertaken the investigation of this case. As Luther's final elements, accepted by the Jahrbuch, made the mean motion of this planet very nearly three times that of Jupiter, its loss has been a matter of great theoretical interest. Owing to the great ease and accuracy of determining orbits by my own method, it seemed desirable to deduce a new orbit from the original observations, of which there were two sets, extending in all over 22 days. One set of these observations was made by Watson with a ring micrometer at Ann Arbor, and the other set was made with a Filar micrometer at Marseilles, France. Watson computed two orbits, resulting in daily motions of 980″ and 846″, respectively. Watson's orbits were based entirely on his own ring micrometer observations. Luther applied systematic corrections to these. He investigated the star places and produced a definitive orbit on the basis of both the Ann Arbor and Marseilles observations, obtaining a mean motion of 904″, and this orbit has been accepted by the Jahrbuch and is the one on the basis of which extensive but fruitless searches have been made for this planet. Mr. Alter's new orbit is based entirely on the Marseilles observations, while Watson's orbits were based entirely on the ring micrometer observations. Mr. Alter has obtained a reliable orbit which agrees exactly with the rejected orbit of Watson, getting a mean motion of 844″ as compared with that of Watson of 846″. This puts an entirely new aspect on the whole problem and proves that the search for this planet has been unavailable on account of the error in the accepted elements, about 1′ of arc per day in the mean motion, which for a number of years would of course make it impossible to locate it. Mr. Alter will continue this problem, compute the perturbations without charge to the Watson trustees, and I have no doubt will be able to decide what has become of the planet.

(*d*) The work on (106) Dione is now entirely completed.

(*e*) Nothing further has been done on (100) Hecate but in the case of (104) Clymene a complete revision by von Zeipel's theory is nearly completed.

(*f*) Nothing further has been done on (94) Aurora, but (168) Sibylla has been completed entirely on the basis of von Zeipel's theory.

3. The investigation of the perturbations of the Watson asteroids is therefore completed with the exception of a final revision of (100) Hecate and (94) Aurora, both of which, as stated above, have been treated by Hansen's method with unsatisfactory results. We do not anticipate much difficulty in finally disposing of these two cases, on account of the very favorable conditions existing in them as compared to (175) Andromache, which readily yielded to our investigation.

4. Under these circumstances it appears certain that the work may be completed with the balance of the appropriation for the current year. Just how far we shall get with the clerical work of preparing the manuscript on the available balance I can not say at this time, but the cost of this clerical work will be slight. At any rate it need not be considered until after the whole volume has been printed. I can advance the same, if necessary, in the meantime.

5. The total appropriation made last year was $1,031.45, which included a balance of $71.45 of the preceding year and an allowance of $80 per month for the current year. Miss Sophia H. Levy continues as chief computer, with the assistance of Mr. O. D. Shane, the monthly expense being $80. Up to March 1 I have expended $580, leaving available for the completion of the work the sum of $451.45. As stated above this, I think, will be sufficient, possibly exclusive of the clerical work of preparing the manuscript and seeing the same through the press.

Respectfully submitted,

A. O. LEUSCHNER.

REPORT OF THE COMMITTEE ON THE HENRY DRAPER FUND.

The committee unanimously recommends to the academy that the following grants for research be approved:

Five hundred dollars to Dr. W. W. Campbell, director of the Lick Observatory, for the purchase and construction of spectrographic and other apparatus for use with the Crossley reflector.

Two hundred and fifty dollars to Dr. S. A. Mitchell, director of the Leander McCormick Observatory, for the purchase of a machine for measuring astronomical photographs.

GEORGE E. HALE,
Chairman.

REPORT OF THE COMMITTEE ON THE J. LAWRENCE SMITH FUND.

In regard to researches now in progress or lately completed which have received aid from this fund the committee reports as follows:

Grant No. 3. Edmund Otis Hovey, curator in geology and paleontology in the American Museum of Natural History, New York, received in 1910, a grant of $400 in aid of the study of certain meteorites. Metallographic and chemical examinations are in progress. Dr. Hovey is at this time out of the country.

Grant No. 4. Prof. C. C. Trowbridge of the department of physics in Columbia University received in 1910 a grant of $400 in aid of his study of the luminous trains of meteors. The academy has also made further grants of $250 in 1912, of $250 in 1913, and of $250 in 1914. The important work of collecting, verifying, and tabulating records of observations of luminous trains has been diligently pursued. Lately, the collection and preparation for publication of drawings of luminous trains has been undertaken. In accordance with the vote of the academy in 1912, three payments have been made from this grant and it is expected that the fourth and last installment will be required during the current year.

Grant No. 5. Dr. George P. Merrill, curator in the department of geology in the United States National Museum, received a grant of $200 in 1910, and of $200 in 1911.

to aid in the study of the occurrence of certain elements suspected to be present in small quantities in some meteorites. This work has been successfully completed, and the final report is ready for submission to the academy; the report contains a tabulation of all available trustworthy analyses of meteorites, and is accompanied by a special paper on the occurrence in meteorites of francolite or some allied phosphatic mineral in place of the apatite of terrestrial rocks.

The committee recommends that the meteorites remaining from the purchases by Dr. Merrill be deposited by the National Academy of Sciences in the United States National Museum.

Prof. S. A. Mitchell, University of Virginia, has applied for a grant of $500 to aid in the computation of orbits of meteors. Dr. Charles P. Olivier, president of the American Meteor Society, has computed orbits from some 9,000 observations of meteor paths, and has some thousand observations awaiting reduction. He has published two important papers containing several hundred computed orbits. The committee recommends the grant of $500 to Prof. S. A. Mitchell, to aid in computations of orbits of meteors.

The cash balance of income now available for grants is $874.87, and the invested income is $1,532.50.

EDWARD W. MORLEY,
Chairman.

REPORT OF THE BOARD OF DIRECTORS OF THE BENJAMIN APTHORP GOULD FUND.

The income balance of the Gould fund is now, in cash, $404.64; in readily negotiable securities, $4,057.50; and in an unpaid grant to the Astronomical Journal, $1,000.

F. R. MOULTON,
Chairman.
E. E. BARNARD.

REPORT OF THE DIRECTORS OF THE WOLCOTT GIBBS FUND.

The directors of the Wolcott Gibbs fund for chemical research have the honor to present their annual report to the National Academy of Sciences.

Since the last report three grants have been made from the income of the fund as follows:

III. One hundred dollars to Prof. W. J. Hale, Ann Arbor, to pay for assistance in a research on derivatives of 2.3-diacetylpentadiene, voted May 15, 1914.

Prof. Hale reports that he has prepared the cyclopentadiopyridazine and the corresponding phenyl compound, and determined their composition. He hopes to finish the research before the summer vacation.

IV. Two hundred dollars to Prof. W. D. Haskins, University of Chicago, for making a special potentiometer and galvanometer to study cobaltammines and ternary systems of fused salts. Voted November 25, 1914.

Prof. Haskins reports that a beginning has been made on the work in spite of his severe sickness and the fact that the war has prevented him from obtaining part of the apparatus from Germany.

V. A second grant of $100 to Prof. Mary E. Holmes of Mount Holyoke College for assistance in her work on the electrolytic determination of cadmium. Voted March 18, 1915.

Prof. Holmes reports that she has purchased platinum electrodes of a new form, and with these has studied the deposition of cadmium and copper, so that she is now beginning to study the electrical separation of cadmium from other metals.

The unexpended income of the fund amounted on April 1 to $111.99.

C. L. JACKSON,
Chairman.

REPORT OF THE COMMITTEE ON THE MURRAY FUND.

The committee on the Sir John Murray fund has to report that during the year 1913 there were exceptional and extraordinary expenses due to the designing and striking off of the Agassiz medal, rendered necessary by the terms of the gift. The committee deemed best not to touch the original fund, and the income derived from this fund at that time was not sufficient to meet these expenses. The committee therefore, with the consent of the treasurer, borrowed from the general fund of the academy a sum sufficient to meet these needs. On December 31, 1914, a portion of this indebtedness was repaid from the income derived from the Murray fund, leaving about $300 still due. By the end of the present calendar year the entire indebtedness of the Murray fund to the general fund will have been paid, leaving the Murray fund out of debt and prepared to meet the legitimate requirements of the fund.

This Murray fund ($6,000) is now drawing interest, and your committee in charge of this fund will be prepared in another year to recommend the bestowal of a second Agassiz medal, as intended by the donor of the gift, Sir John Murray, or possibly to suggest to the academy a contribution to further the science of oceanography.

ARNOLD HAGUE,
Chairman.

REPORT OF THE COMMITTEE ON AWARD OF BARNARD MEDAL FOR MERITORIOUS SERVICE IN SCIENCE.

Your committee on award of the Barnard medal begs leave to submit the following report:

The committee has considered many candidates, of which several have been esteemed generally worthy of recommendation for the medal in question. The terms of the specifications concerning the award of this medal impose, however, certain restrictions which must be borne in mind. These specifications are contained in the following paragraph from the will of the founder of the fund provided for the quinquennial bestowal of this medal:

"A gold medal of the value of $200, established by the provisions of the will of President Barnard and endowed by him, known as the 'Barnard medal for meritorious service to science,' is awarded quinquennially to such person, if any, whether a citizen of the United States or any other country, as shall within the five years next preceding have made such discovery in physical or astronomical science, or such novel application of science to purposes beneficial to the human race, as in the judgment of the National Academy of Sciences of the United States shall be esteemed most worthy of such honor."

Observing the limitations here set forth and giving careful attention to the individual merits of the candidates considered, your committee has reached the unanimous conclusion that William Henry Bragg, professor of physics in the University of Leeds, and his son, W. L. Bragg, now a student at the University of Cambridge, should be recommended for the next award. The reasons which have led your committee to this conclusion are briefly indicated in the following statement:

The doctrine of atomism, foreshadowed poetically by Leucippus, Democritus, and Lucretius, and raised to the dignity of an exceedingly fruitful hypothesis by Dalton and the modern schools of chemists and physicists, is now approaching the long-sought stage of verification and demonstration. Since the time of Dalton a multitude of investigators have contributed continuously toward the attainment of this advanced stage, but progress has been remarkably cumulative and rapid during the past quarter of a century. The fundamental importance of the several fields of research in which the atomic structure of matter is now being established is sufficiently indicated by the fact that four preceding awards of the Barnard medal have been made for researches in these fields. But this importance is now emphasized anew by the recommendation that the next award of the Barnard medal be made to Messrs. W. H. and W. L. Bragg, father and son, for highly meritorious work in the same fields.

About three years ago Dr. Laue and his collaborators of the University of Munich produced some remarkable photographs by passing a narrow beam of X-rays through a crystal of zinc blende. These photographs revealed geometrical figures strikingly suggestive of the molecular structure attributed by crystallographers to such minerals. The bearings of this discovery were quickly appreciated by a number of investigators, and extraordinary advances in crystallography, in the theory of X-radiation, and in the application of X-rays to the study of matter, have rapidly followed. In securing these advances the Messrs. Bragg have been preeminent. By means of a rare combination of experimental skill and theoretical insight they have been able to show that X-rays are essentially light rays of excessively short wave length and that crystalline structure is definitely molecular. They have determined the order of wave length of X-rays and they have also determined the order of the intervals which separate the molecules in certain crystalline forms. In a noteworthy series of luminous publications and in an equally noteworthy series of masterly public expositions they have supplied the initial methods and furnished many of the preliminary results which must lead to a still more productive era in the advancement of molecular physics and hence in the advancement of the entirety of physical science.

In view of these achievements your committee hereby unanimously recommends that Messrs. W. H. and W. L. Bragg be proposed to Columbia University for an award of the Barnard medal for the year 1915.

For the committee.

R. S. WOODWARD.

REPORT OF THE COMMITTEE ON SOLAR RESEARCH.

The committee begs to call the attention of the academy to the publication of Volume IV of the Transactions of the International Union for Cooperation in Solar Research, which contains the complete proceedings of the last meeting in Bonn, reports of the various committees, resolutions adopted by the Union, and several scientific papers on solar and stellar phenomena.

The four volumes of transactions already published by the Solar Union may be obtained from Messrs. Longmans, Green & Co., Fourth Avenue and Thirtieth Street, New York, at $2.50 per volume.

GEORGE E. HALE, *Chairman.*

BUSINESS FROM THE COUNCIL.

Recommended:

(*a*) That the annual dues for 1915 be $5.

(*b*) That the election of new members and of two members of the council be held Wednesday morning, April 21, 1915.

(*c*) That the treasurer be authorized to pay the annual subscription of 200 francs to the International Association of Academies.

(*d*) That the American Security & Trust Co., of Washington, D. C., and Spencer Trask & Co., of New York City, be designated fiscal advisers of the academy for 1915–16.

(*e*) That the time and place of the autumn meeting, 1915, be left to the president and the home secretary with power.

(*f*) That the following bequest from Mrs. Mary Anna Palmer Draper be accepted:

[Extract from the will of Mrs. Mary Anna Palmer Draper, page 7, section 9 (second paragraph).]

I give and bequeath to the National Academy of Sciences, Smithsonian Institution, Washington, D. C., the sum of twenty-five thousand dollars ($25,000).

RESOLUTION.

The National Academy of Sciences, desiring to express its deep appreciation of the recent bequest of Mrs. Henry Draper, places this minute upon its records.

The name of Draper occupies a unique place in the annals of science in America. John William Draper, author of "The Intellectual History of Europe," was a pioneer of American research, adding by his own investigations to the progress of the first half of the nineteenth century. Henry Draper, his son, an early member of the National Academy, was one of the founders of astrophysics. He was the first to photograph nebulæ and the first to secure photographs of stellar spectra of sufficiently perfect definition to show the lines. His researches, made with instruments of his own construction, are being continued on a large scale by the Harvard College observatory. Mary Anna Palmer Draper, wife of Henry Draper, and his devoted assistant in astrophysical research, has endowed the Henry Draper Memorial to continue his investigations. Her interest in the National Academy was manifested by her constant attendance at its meetings, her receptions of the academy at her home in New York, and by two important gifts. The first of these, made in 1883, established the Draper gold medal for researches in astronomical physics, and provided, through excess income, for the assistance of many investigations in this field. This gift has now been supplemented by a bequest of $25,000, to be known as the John S. Billings fund, the income of which will be applied at present toward the support of the recently established Proceedings.

The academy feels that this appropriate memorial of one of its leading members, providing funds greatly needed for a new publication, and closing a long series of exceptional services to science, will be widely and gratefully appreciated.

A copy of this resolution was directed to be forwarded to the family of Mrs. Draper.

REPORT OF THE EDITORIAL BOARD OF THE PROCEEDINGS.

The editorial board of the Proceedings reports to the academy that four numbers of the Proceedings have now been issued, containing 67 original papers in addition to the report of the autumn meeting, notices of scientific memoirs, and announcements. These numbers have consisted of 258 pages, an average of 64 pages per number and of about 4 pages per article. The papers are distributed among different sciences as follows: Mathematics, 11; astronomy, 11; physics, none; chemistry, 11; geology, 2; paleontology, 1; botany, 4; zoology (including genetics), 12; physiology, 8; pathology, none; anthropology, 5; psychology, 2. It will be noticed that the subjects of physics, of geology and paleontology, and of pathology have been very inadequately represented; and the editorial board urges members of the academy in these fields to endeavor to remedy this situation.

An edition of 3,000 copies of these four numbers has been printed. Of this edition about 900 are to be sent abroad to the libraries of universities and other active research institutions upon a mailing list prepared with great care by the foreign secretary, aided by members of the editorial board. Of this edition 1,200 copies have also been distributed in this country by the home secretary to important libraries and to the thousand persons whose names are starred in Cattell's American Men of Science.

ARTHUR A. NOYES, *Chairman.*

REPORT OF THE COMMITTEE ON THE COLLECTION OF HISTORICAL PORTRAITS, MANUSCRIPTS, AND INSTRUMENTS, INCLUDING INSTRUMENTS PURCHASED AT THE EXPENSE OF THE TRUST FUNDS.

Your committee on the collection of historical portraits, manuscripts, and instruments, including instruments purchased at the expense of the trust funds which are no longer needed for the original purpose, begs to report as follows:

That the collection of portraits of the members of the academy has been brought together and arranged alphabetically.

That the foreign secretary has turned over the medal from the Groningen Academy celebrating its three hundredth anniversary.

That the following apparatus was presented by Mrs. Henry Draper and has been deposited in the United States National Museum:

1 slit.
1 spectrum photograph (broken).
1 liquid prism cell.
1 double liquid prism cell.
1 prism with 2-inch faces.
1 package—attempts of Henry Draper to rule gratings.
1 speculum metal ruled surface 2 inches square.
1 Bunsen burner.
2 boxes, 12 photographs each.
1 box, 50 photographs.
1 box, 34 photographs.
1 box, 22 photographs.
1 box, 15 daguerreotypes.
1 box, 7 photographs.
13 Geisler ? tubes.

CHARLES D. WALCOTT, *Chairman.*

REPORT OF THE COMMITTEE OF CHAIRMEN OF SECTIONS.

The committee of chairmen of sections of the academy recommends the following rule in regard to the nomination of members:

The chairman of each section of the academy shall submit to the members of his section, not later than November 1 of each year, a ballot containing the names of all those persons who received not less than 2 votes in the nominating ballot of the preceding year and of any other persons who were newly proposed for consideration at that time. Each member of the section shall be expected to return this ballot to the chairman within two weeks with his signature and with crosses placed against the names of those persons whom he is prepared to indorse for nomination. Each member may also write upon the ballot in a place provided for the purpose any new names which he desires to have included in the ballot to be submitted to the section in the following year. The vote resulting from this ballot shall be regarded as informal.

The chairman shall then submit to the members of his section a new ballot showing the results of the informal vote; and each member shall be expected to return this ballot to the chairman with his signature and with crosses placed against the names of those persons whom he will indorse for nomination.

The chairman shall then certify to the home secretary, prior to January 1, the names of those persons who have been voted for on this second ballot by a majority of the members of the section, and shall furnish him a list of the publications of these nominees, as required by the constitution.

A. A. NOYES, *Chairman.*

The recommendation of the committee was adopted by the academy as an amendment to Rule IV (p. 58, seq.).

ELECTION OF MEMBERS OF THE COUNCIL.

Mr. W. H. Howell and Mr. J. M. Coulter were chosen members of the council to succeed Mr. W. T. Councilman and Mr. R. S. Woodward.

ELECTION OF NEW MEMBERS.

The following were elected members of the academy on April 21, 1915:

Henry Seely White, mathematician, Vassar College, Poughkeepsie, N. Y.

Charles Greeley Abbot, astrophysicist, Astrophysical Observatory, Smithsonian Institution, Washington, D. C.

Robert Andrews Millikan, physicist, University of Chicago, Chicago, Ill.

Alexander Smith, chemist, Columbia University, New York City.

Samuel Wendell Williston, paleontologist, University of Chicago, Chicago, Ill.

William Ernest Castle, zoologist, Harvard University, Cambridge, Mass.

Frank Rattray Lillie, zoologist, University of Chicago, Chicago, Ill.

Graham Lusk, physiologist, Cornell University Medical College, New York City.

Victor Clarence Vaughan, pathologist, University of Michigan, Ann Arbor, Mich.

Granville Stanley Hall, psychologist, Clark University, Worcester, Mass.

CONSTITUTION OF THE NATIONAL ACADEMY OF SCIENCES.

The draft of the constitution as amended and unanimously adopted in the committee of the whole at the Chicago meeting, printed in full on pages 30–37, Annual Report for 1914, was presented by the president as chairman of the committee of the whole, and adopted.

RULES.

The rules revised and arranged in groups to correspond with the articles and sections of the new constitution were presented and adopted as printed on pages 56–61 of this report.

ANNOUNCEMENTS OF COMMITTEE PERSONNEL.

The president announced the appointment of the following new members of standing committees:

The Henry Draper fund: J. S. Ames in place of A. W. Wright.

The J. Lawrence Smith fund: E. C. Pickering to succeed Raphael Pumpelly.

The Comstock fund: Elihu Thomson to succeed himself.

The Murray fund: W. H. Dall to succeed himself.

The Marcellus Hartley fund: George F. Becker, appointed chairman in place of Elihu Thomson, resigned; Theobald Smith to succeed Elihu Thomson, resigned.

ANNOUNCEMENT OF THE AUTUMN MEETING.

The president announced that an invitation had been received from the members of the academy living in New York City asking that the autumn meeting be held there, and that this invitation had been accepted.

SCIENTIFIC SESSIONS.

The following program of scientific sessions was carried out in full at the annual meeting of the National Academy of Sciences, 1915:

PROGRAM, ANNUAL MEETING, APRIL 19, 20, 21, 1915.

Monday, April 19, 1915.

[2.30 p. m.—Auditorium, National Museum.]

Thomas H. Morgan: Localization of the hereditary material in germ cells. (30 minutes.)

PROBLEMS OF NUTRITION AND GROWTH.

Jacques Loeb: Stimulation of growth. (30 minutes.)

Lafayette B. Mendel: Specific chemical aspects of growth. (30 minutes.)

Eugene F. Du Bois, medical director, Russell Sage Institute of Pathology (by invitation of the program committee): Basal metabolism during the period of growth. (30 minutes.)

I. S. Kleiner and S. J. Meltzer: Retention in the circulation of injected dextrose in depancreatized animals and the effect of an intravenous injection of an emulsion of pancreas upon this retention. (10 minutes.)

[8 p. m.—Auditorium, National Museum.]

First William Ellery Hale lecture, by Thomas Chrowder Chamberlin, of the University of Chicago. Subject: The evolution of the earth. (Illustrated.)

The lecture will be followed by a conversazione in the art gallery of the Museum. All members of the scientific societies of Washington, with ladies, are cordially invited to attend both lecture and conversazione. No cards are necessary.

Tuesday, April 20, 1915.

[10 a. m.—Auditorium, National Museum.]

Joel Stebbins, Draper medallist: The electrical photometry of stars. (30 minutes, illustrated.)

George E. Hale: A vortex hypothesis of sun spots. (20 minutes, illsutrated.)

Edwin B. Frost: The spectroscopic binary, mu orionis. (10 minutes, illustrated.)

Robert W. Wood: One-dimensional gases and the experimental determination of the law of reflection for gas molecules. (10 minutes, illustrated.)

Robert W. Wood: The relations between resonance and absorption spectra. (15 minutes, illustrated.)

Edward L. Nichols and H. L. Howes: On the polarized fluorescence of ammonio-uranyl chloride. (15 minutes, illustrated.)

Robert A. Millikan (by invitation of the program committee): Atomism in modern physics. (30 minutes, illustrated.)

[2.30 p. m.—Auditorium, National Museum.]

William Morris Davis: Problems associated with the origin of coral reefs, suggested by a Shaler memorial study of the reefs of Fiji, New Caledonia, Loyalty Islands, New Hebrides, Queensland, and the Society Islands, in 1914. (60 minutes, illustrated.)

F. W. Clarke: Inorganic constituents of marine invertebrates. (15 minutes.)

Roy L. Moody (introduced by H. F. Osborn): Amphibia and reptilia of the American Carboniferous. (15 minutes, illustrated.)

Henry Fairfield Osborn and J. Howard McGregor: Human races of the old stone age of Europe, the geologic time of their appearance, their racial and anatomical characters. (15 minutes, illustrated.)

Charles A. Davis, geologist, Bureau of Mines (by invitation of the program committee): On the fossil algæ of the petroleum-yielding shales of the Green River formation. (15 minutes, illustrated.)

Nathaniel L. Britton: The forests of Porto Rico. (10 minutes.)

J. Walter Fewkes: Pictures on prehistoric pottery from the Mimbres Valley in New Mexico and their relation to those of Casas Grandes. (20 minutes, illustrated.)

Charles B. Davenport: Inheritance of temperament. (15 minutes.)

Charles B. Davenport: Inheritance of Huntington's chorea. (12 minutes.)

E. E. Barnard: A singular dark marking on the sky. (5 minutes, illustrated.)

E. W. Brown (introduced by R. S. Woodward): Biographical memoir of George William Hill. (Read by title.)

Wednesday, April 21, 1915.

[2.45 p. m.—Auditorium, National Museum.]

George H. Parker, official representative of the academy upon the special commission appointed by the President of the United States to study and report upon the Alaskan fur seals during the summer of 1914. Subject: The fur-seal herd of the Pribilof Islands. (Illustrated.)

[4 p. m.—Auditorium, National Museum.]

Second William Ellery Hale lecture, by Thomas Chrowder Chamberlin, of the University of Chicago. Subject: The evolution of the earth. (Illustrated.)

PRESENTATION OF THE HENRY DRAPER MEDAL.

At the annual dinner of the Academy, held at the Hotel Raleigh April 20, 1915, the Henry Draper medal, provided by the Henry Draper fund, was awarded to Joel Stebbins, of the University of Illinois, in recognition of his work on application of the selenium cell to stellar photometry.

AUTUMN MEETING.

The autumn meeting of the academy was held in the American Museum of Natural History at New York City, on November 15, 16, 17, 1915. Forty-eight members were present, as follows: Abbot (C. G.), Becker, Boas, Boltwood, Britton, Castle, Cattell, Chittenden, Clark (W. B.), Clarke (F. W.), Clarke (J. M.), Conklin, Coulter, Crew, Cross, Davenport, Day, Donaldson, Hague, Harper, Harrison, Hillebrand, Holmes, Howell, Iddings, Lindgren, Loeb, Lusk, Mall, Mendel, Michelson, Morgan, Morse, Noyes (A. A.), Osborn (H. F.), Osborne (T. B.), Pickering, Ransome, Reid, Richards, Rosa, Schuchert, Smith (Theobald), Van Hise, Walcott, Webster, Wheeler, White, (H. S.).

BUSINESS SESSION.

The home secretary made the following announcements:

DEATHS SINCE THE ANNUAL MEETING.

Members.—John Ulric Nef, elected 1904, died August 13, 1915; Frederick W. Putnam, elected 1885, died August 18, 1915.

Foreign associates.—Theodor Boveri, elected 1913, died October 15, 1915; Paul Ehrlich, elected 1904, died August 20, 1915.

PUBLICATIONS ISSUED SINCE THE LAST ANNUAL MEETING.

Proceedings, volume 1, numbers 1–11.

Memoirs, volume 12, part 2, memoirs 2 and 3, volume 13, as follows:

Volume 12, part II. Second memoir, Charles C. Adams: The variations and ecological distribution of the snails of the genus Io.

Third memoir, Joseph E. Pogue: The Turquois; a study of its history, mineralogy, geology, ethnology, archæology, mythology, folklore, and technology.

Volume 13, Oliver Cummings Farrington: Catalogue of the meteorites of North America to January 1, 1909.

Biographical memoirs: John Huntington Crane Coffin, by G. C. Comstock; Miers Fisher Longstreth, by Rebecca C. Longstreth; Charles Anthony Schott, by Cleveland Abbe; Henry Morton, by Edward L. Nichols; John Wesley Powell, by William M. Davis; Peter Lesley, by William M. Davis.

COMMITTEE CHANGES.

The election of Edwin B. Frost to be chairman of the board of directors of the Bache fund, and of Arthur Gordon Webster to succeed Ira Remsen as a member of the board.

The board is now constituted as follows:

E. B. Frost, chairman; A. G. Webster, R. G. Harrison.

The election of Theodore William Richards to succeed Ira Remsen as a member of the board of directors of the Wolcott Gibbs fund.

The board is now constituted as follows:

C. L. Jackson, chairman; T. W. Richards, Edgar F. Smith.

The ad interim appointments of acting chairmen of the sections of the academy are as follows:

Mathematics: E. H. Moore, acting chairman.
Astronomy: G. C. Comstock, acting chairman.
Physics and Engineering: R. S. Woodward, acting chairman.
Chemistry: A. A. Noyes, acting chairman.
Geology and Paleontology: Arnold Hague, acting chairman.
Botany: J. M. Coulter, chairman, 1915–1918.
Zoology and Animal Morphology: E. G. Conklin, acting chairman.

The ad interim appointments of acting chairmen—Continued.

Physiology and Pathology: R. H. Chittenden, acting chairman.

Anthropology and Pscyhology: W. H. Holmes, acting chairman.

The following members were appointed a committee to audit the accounts of the treasurer in accordance with Rule V, 5: William H. Dall, chairman; Arthur L. Day, F. W. Clarke.

The division of the members of the editorial board of the Proceedings into three groups, one-third of them retiring annually, in accordance with Rule V, 1 was announced as follows:

December 1, 1916.—W. B. Cannon, J. McK. Cattell, J. M. Coulter, Simon Flexner, R. G. Harrison.

December 1, 1917.—C. B. Davenport, E. G. Conklin, E. B. Frost, W. H. Holmes, E. H. Moore.

December 1, 1918.—J. M. Clarke, J. J. Abel, R. A. Millikan, Alexander Smith, J. P. Iddings.

DELEGATES.

Mr. Arthur L. Day represented the National Academy at the inauguration of Dr. F. J. Goodnow as president of Johns Hopkins University and at the dedication of the new University buildings on March 20, 1915.

Mr. T. H. Morgan represented the National Academy at the fiftieth anniversary of Vassar College and the inauguration of Dr. H. N. MacCracken as president on October 13, 1915.

COMMITTEE ON PANAMA CANAL.

The president announced that in accordance with the request of the President of the United States he had appointed the following a committee of the academy to consider and report upon the possibility of controlling the slides which are seriously interfering with the use of the Panama Canal: C. R. Van Hise, chairman; H. L. Abbot, G. F. Becker, J. C. Branner, Whitman Cross, Arthur L. Day, J. F. Hayford, H. F. Reid, R. S. Woodward, R. C. Carpenter, Arthur P. Davis, John R. Freeman.

MARSH FUND.

The treasurer reported that Mr. W. W. Farnam, executor of the estate of O. C. Marsh, deceased, had transmitted to the academy on July 23, 1915, the final payment of $750, completing the legacy of $10,000 left by Mr. Marsh to the National Academy of Sciences.

CONSOLIDATION OF FUNDS.

The treasurer reported that the plan for the consolidation of certain funds of the academy for investment purposes had been approved by the fiscal advisers of the academy, Messrs. Spencer Trask

& Co., of New York, and the American Security & Trust Co., of Washington, D. C., and that by direction of the council the contemplated consolidation of the investments would be completed about February 1, 1916.

REPORT OF THE COMMITTEE ON THE HENRY DRAPER FUND.

The committee on the Henry Draper fund recommends to the academy that the following appropriations be made from available income:

Four hundred dollars to Dr. Frank Schlesinger, director of the Allegheny observatory, to be applied toward the construction of a machine for measuring astronomical photographs.

Three hundred dollars to Dr. Joel Stebbins, director of the University of Illinois observatory, to be used in the further development of the photo-electric photometer and its application to the study of variable stars.

Two hundred dollars to be applied toward the expense of publishing the Proceedings of the National Academy.

GEORGE E. HALE,
Chairman.

NAME OF THE ACADEMY.

The following motion was approved by the academy:

That on the title page of the Proceedings and of other publications of the academy, where permissible, the legal title, National Academy of Sciences, be followed by the words "of the United States of America."

REPORT OF THE COMMITTEE ON THE MEDAL FOR EMINENCE IN THE APPLICATION OF SCIENCE TO THE PUBLIC WELFARE.

As no names of candidates were laid before the academy at the autumn meeting in 1914, the money available for making medals will be added to the principal of the Marcellus Hartley fund.

At the stated meeting in April Mr. Thomson expressed by letter a desire to be relieved, and I was appointed chairman.

The committee recommends to the academy that the medal for eminence in the application of science to the public welfare be conferred by the academy at its annual meeting in 1916 upon Mr. Cleveland Abbe and Mr. Gifford Pinchot.

In 1868 Mr. Cleveland Abbe was appointed director of the Cincinnati Observatory. On September 1, 1869, he inaugurated daily weather reports for the Cincinnati Chamber of Commerce. The favor with which the Cincinnati observations were received was brought to the attention of Congress, which passed a joint resolution in February, 1870, directing the Secretary of War to provide for weather observations. In January, 1871, Gen. Meyer was directed to take charge of the new weather bureau, and he appointed Abbe his meteorologist. In the first year Abbe in person did all the work of collating and tabulating. He remained in the Signal Service until 1891, when the United States Weather Bureau was inaugurated under the Department of Agriculture, and in this bureau he has served ever since. It is apparent that the weather service of the United States owes its origin and a very large part of its efficiency to Mr. Abbe. It is unnecessary to call attention to the fact that the warnings sent out by this service have saved great numbers of lives and vast sums of money. The attempts to predict the weather on scientific principles were at first met in Europe by ridicule, but most of the European countries have since established bureaus of the same description, all of which is due to Abbe.

As to the work of Mr. Gifford Pinchot, it is so recent and well known that a few words will suffice. Only a few years ago the tendency in the United States to squander its natural resources was lamentable. Mr. Pinchot's efforts brought about the reaction in favor of conservation, finding earnest support and sympathy from Mr. Roosevelt during his first presidential term.

Mr. Pinchot's efforts were at first confined to forest reserves, these being in his own charge, but his public and private warnings and arguments have led to greatly increased caution in the expenditure of the national capital.

GEORGE F. BECKER,
Chairman.

AWARD OF THE MEDAL FOR EMINENCE IN THE APPLICATION OF SCIENCE TO THE PUBLIC WELFARE.

Upon recommendation of the committee on the medal for eminence in the application of science to the public welfare and the indorsement of the council, the academy voted to award two medals at its annual meeting in 1916.

To Mr. Cleveland Abbe, member of the academy, for distinguished public service in establishing and organizing the Weather Service of the United States.

This is the first award of this medal to a member of the academy.

To Mr. Gifford Pinchot for distinguished public service in organizing and directing the movement for the systematic conservation of the natural resources of the United States.

REPORT OF THE EDITORIAL BOARD OF THE PROCEEDINGS.

The editorial board of the Proceedings presents the following brief report of the progress during the past year:

The first 10 issues of the Proceedings have consisted of 562 pages. In the numbers have been presented reports of the spring meeting, notices of the scientific and biographical memoirs published by the academy, and 141 original papers averaging very nearly four pages in length. These articles have been distributed among the different sciences as follows: Astronomy, 29; mathematics, 19; chemistry, 18; physiology, 16; genetics, 14; anthropology, 11; zoology, 10; physics, 7; botany, 4; geology, 4; psychology, 2; various other sciences, 1 or 2 each.

Two well-attended meetings of the editorial board have been held during the year, at which plans were discussed of increasing the number of contributions to the Proceedings, of enlarging their circulation, and of improving the character of the journal. A foreign mailing list, including 905 names, has been prepared by the foreign secretary, with the cooperation of the editors, and the Proceedings are being circulated in accordance with this list.

A statement from the treasurer shows that the cost of printing and distributing the first 10 numbers of the Proceedings has been $2,466.04, and that the other charges on the proceedings account from January 1, 1915, to November 9, 1915, have amounted to $1,188.30.

ARTHUR A. NOYES, *Chairman.*

NEW RULE REPLACING RULE IV, 1.

Upon recommendation of the council the following amendment to the rules of the academy was adopted:

Rule IV, 1, to read:

"The term of service of each chairman of a section shall be three years, to date from the closing session of the April meeting next following his election. Chairmen of sections shall be chosen by mail ballot, the member receiving the highest number of votes cast to be deemed elected. It shall be the duty of each retiring chairman to conduct the election of his successor and to report the result of the election to the home secretary before the April meeting at which his term of service expires. Should any section fail to elect a chairman before November 1, the president is empowered to appoint a temporary chairman to serve until the April meeting next following. No chairman shall be eligible for reelection for two consecutive terms."

SCIENTIFIC SESSIONS.

Following is the program of the scientific sessions at the New York meeting:

AMERICAN MUSEUM OF NATURAL HISTORY.

Monday, November 15.

[8 p. m.—Auditorium, first floor.]

MICHAEL IDVORSKY PUPIN: The problem of aerial transmission.

Tuesday, November 16.

[10.30 a. m.—West Assembly Hall, first floor.]

EDWIN G. CONKLIN: Nature of cell polarity.

W. E. CASTLE: Is selection or mutation the more important agency in evolution?

A. E. VERRILL: Inheritance of clubbed feet through five known generations; inheritance of abnormal or defective thumbs through four known generations.

CHAS. B. DAVENPORT: Heredity of stature.

E. C. MACDOWELL (introduced by Chas. B. Davenport): Parental alcoholism and mental ability—a comparative study of habit formation.

JAMES B. MURPHY (introduced by Jacques Loeb): Rôle of the lymphocytes in resistance to cancer.

GRAHAM LUSK: The colorimeter as an interpreter of life processes.

T. B. OSBORNE and LAFAYETTE B. MENDEL: The resumption of growth after failure to grow.

W. H. HOWELL: Ultramicroscopic studies of the fibrin-gel.

C. WILLIAM BEEBE (introduced by Henry Fairfield Osborn): Origin of the flight of birds.

FRANK M. CHAPMAN (introduced by Henry Fairfield Osborn): Ornithological survey of the Andes and western coast of South America.

DOUGLAS HOUGHTON CAMPBELL: Treubia.

MARSHALL A. HOWE (introduced by N. L. Britton): Fossil calcareous algae from the Panama Canal Zone with reference to reef-building algae.

A. B. STOUT (introduced by N. L. Britton): Sterility in plants and its inheritance.

J. N. ROSE (introduced by N. L. Britton): Recent explorations in the cactus deserts of South America.

GEORGE H. SHULL (introduced by Chas. B. Davenport): Some factors affecting the inheritance ratios in shepherd's purse.

HERBERT M. RICHARDS (introduced by R. A. Harper): The respiratory ratio of cacti in relation to their acidity.

R. A. HARPER: Some studies in morphogenesis.

[2.30 p. m.—West Assembly Hall, first floor.]

Herbert S. Jennings: Can we observe organic evolution in progress?

John M. Coulter: Orthogenesis in plants.

Theodore W. Richards: Investigations recently conducted in the Wolcott Gibbs Memorial Laboratory.

B. B. Boltwood: The life of radium.

Wednesday, November 17.

[10.30 a. m.—West Assembly Hall, first floor.]

Alfred G. Mayer and **Robert S. Woodward** (by title): The biography of Alfred Marshall Mayer.

C. G. Abbot: The solar radiation and its variability.

A. G. Webster: Experiments and theory of conical horns; instruments for measurements of sound; an instrument for finding the direction of a fog signal.

Edward C. Pickering: The New Draper Catalogue.

Henry Norris Russell (introduced by Edward C. Pickering): On the albedo of the moon and planets.

George F. Becker: A possible origin for some spiral nebulae.

L. A. Bauer (introduced by R. S. Woodward): Concomitant changes in the earth's magnetism and solar radiation.

Fred E. Wright and **J. C. Hostetter** (introduced by Arthur L. Day): Experiments on the mean free path of gases; observations on Wood's one-dimensional gas.

James Kendall (introduced by Alexander Smith): The water correction in conductivity determinations.

Henry Fairfield Osborn: Extremes of adaptation in carnivorous dinosaurs, tyrannosaurus and ornithomimus.

C. K. Leith (introduced by C. R. Van Hise): The influence of certain minerals on the development of schists and gneisses.

W. M. Davis: Glacial sculpture of the Mission Range, Montana.

Waldemar Lindgren: Crystallization of quartz veins.

E. W. Hilgard: A peculiar clay from near the City of Mexico.

George P. Merrill (introduced by Arthur L. Day): The minor constituents of meteorites (by title).

DECEASED MEMBERS.

FREDERIC WARD PUTNAM.

The following minute on the life and services of Prof. Putnam was placed upon the records of the faculty of arts and sciences of Harvard University at the meeting of October 26, 1915:

Frederic Ward Putnam, son of Ebenezer and Elizabeth Appleton Putnam, was born in Salem, Mass., April 16, 1839, and died August 18, 1915. His ancestors on both sides were early immigrants from England, the first American ancestor being John Putnam, who settled in Salem in 1640. The father, grandfather, and great-grandfather of Prof. Putnam were all graduates of Harvard College, and the associations of his mother's family had been close with the institution from its beginning.

His early schooling was received in private schools and at home under his father's tuition. At an early age he showed great interest in natural history and had thoughts of devoting himself to scientific pursuits. Promised an appointment at West Point, however, he was preparing himself to adopt a military career when Louis Agassiz met him at the museum of the Essex Institute and, recognizing in him a keen student, persuaded him to take up natural history as his life work. His preparation for the military profession was accordingly abandoned, and he devoted himself at once to the study of birds, being made curator of ornithology in the Essex Institute in 1856. In the following year he was made assistant to Prof. Agassiz, and entering the Lawrence Scientific School received the degree of S. B. in 1862. For a number of years after this he continued his work in the study of animal life as curator of vertebrates at the Essex Institute, of ichthyology at the Boston Society of Natural History, and as assistant in the museum of comparative zoology at Harvard University. During these years he had also some experience in museum administration, as he was entrusted with the charge of the museum of the Essex Institute and of the museum of the East Indian Marine Society in Salem, and later was made director of the museum of the Peabody Academy of Science in the same city. In 1873 he was chosen to fill the important position of permanent secretary of the American Association for the Advancement of Science, an office which he held for 25 years. Prof. Putnam's connection with the association lasted through one of the most important periods in its life, and to his energy and administrative ability much of its success was due.

Although it was in the field of natural history that Prof. Putnam for many years carried on most of his work, his interest in archeology was early aroused. While attending the meeting of the American Association at Montreal in 1857 he discovered on Mount Royal a small kitchen-midden, and was thus among the very first in this country to recognize the presence of the remains of prehistoric man. In 1874 Dr. Jeffries Wyman, the first curator of the Peabody Museum of American Archeology and Ethnology, died, and Prof. Putnam was appointed to take the place. This began his connection with the institution of which he was the director for over 40 years. In 1886 he was made Peabody professor of American archeology and ethnology and served as such until 1909, when he joined the group of the emeriti. During the nearly half century of his connection with the museum he labored unceasingly to build up its collections, both by purchase and by explorations in the field. He was one of the earliest to realize the need of archeological and anthropological exploration and to insist that careful field notes and data are equally important with the specimens themselves. The great collections which he gathered and which place the museum in the forefront of the museums of this country are a witness of his success.

With the appointment to the Peabody professorship, Harvard University became one of the first institutions in the country to offer instruction in the field of anthropology and American archeology. Although always more active in museum and field work than in teaching, Prof. Putnam strove constantly to develop the instruction in his chosen science from the time when, before any courses were offered, he had several voluntary students working under his direction, to the very last days of his life, when nearly a score of specialized courses were offered by the division of which he had for so long been the head.

Striking as were the results of his work here at Harvard, his influence was literally nation wide, and he may justly be called one of the fathers of anthropology in America, the others being Brinton, of Pennsylvania, and Powell, of Washington. In 1892 he was made chief of the department of anthropology at the World's Columbian Exposition at Chicago, and not only brought together what was probably the greatest archeological and anthropological exhibit ever gathered in this country up to that time, but collected by the aid of numerous collaborators a vast mass of data in regard to our native peoples which has not yet been fully worked up. The specimens so brought together for the exposition became the nucleus of the present Field Museum of Natural History, which may thus be regarded as, in its origins, of his making. In 1894 Prof. Putnam was made curator of anthropology in the American Museum of Natural History in New York City, and for nearly 10 years he applied to its administration and to the building up of its collections the experience he had gained in Cambridge and Chicago. It was again largely through his efforts that the University of California established a department of anthropology in 1903, and he held the position of professor of anthropology and director of the anthropological museum in that institution until his retirement in 1909.

In his long life of scientific work a great deal of Prof. Putnam's attention was necessarily devoted to administrative and editorial duties, but he found time, nevertheless, for the writing of a large number of scientific papers, and the bibliography appended to the anniversary volume presented to him in 1909 by his associates and students, contains something over 400 titles. His membership in scientific societies, both at home and abroad, was extensive. In this country he was a member of the National Academy of Sciences, the American Academy of Arts and Sciences, the American Philosophical Society, and a great many others; outside the United States he was an honorary or corresponding member of the anthropological societies of Great Britain, Paris, Stockholm, Berlin, Rome, Florence, and Brussels, of the Royal Society of Edinburgh, and others of minor importance. In 1868 he received the degree of A. M. from Williams College; in 1894 the degree of S. D. from the University of Pennsylvania; and in 1896 the Cross of the Legion of Honor from the French Government.

Prof. Putnam was twice married: In 1864 to Adelaide Martha Edmands, of Cambridge, by whom he had three children, two daughters and one son. After her death, 15 years later, he married in 1882 Ester Orne Clarke, of Chicago, who, with his three children, survives him.

To his students and associates Prof. Putnam endeared himself by his kindliness and sympathy. For every one he had a cordial greeting and a pleasant word. He was ready always to give unstintedly of his time, and so far as he was able, from his pocket, to anyone who asked his aid. He had the gift of inspiring those with whom he came in contact with enthusiasm for research, and to few is it given to have so wide an influence. Until the very last years the great majority of those in this country who were working in the anthropological field had been associated more or less closely with Prof. Putnam, either as students or colleagues in the various institutions of which he he had been a member. His loss, therefore, is widely felt, not only because he was an able administrator and the last of the three founders of anthropological study in this country but also because he had won the affections of so many as a teacher and a friend. (Extract from Science, n. s., vol. 42, p. 638.)

PAUL EHRLICH.

Paul Ehrlich was a genius of the first order. He was born in Strehlen, Germany, March 14, 1854, and died at Frankfort-on-the-Main August 20, 1915. While he was still a student of medicine, the problems presented by the affinity of lead for certain tissues attracted his attention. From speculating on the nature of this affinity, his interest grew to include protoplasmic affinities in general, and thus was determined the direction his genius should take.

Some of the notable results of his early investigations are discoveries in bacterial staining methods, which proved of great value to Koch and which, ever since, have been in daily use everywhere; the microchemical differentiation of leukocytes, on which rests the study of the blood for clinical purposes; the development of the methylene blue reaction on living tissues, and the formulation of that unique conception of protoplasmic structure and function on which he based the great side-chain theory which he advanced to explain the reactions in immunity and other phenomena.

What might be termed the second phase of Ehrlich's work concerned investigations in immunity under the guidance of the side-chain conception. No better illustration of the practical usefulness of the imagination in creating a successful working hypothesis can be given than the results achieved by Ehrlich in the field of immunity. Perhaps the usefulness is seen most clearly in the standardization of diphtheria antitoxin, which was a direct outcome of experiments devised according to the side-chain idea. Ehrlich's method, to the exclusion of others, is used all over the world; but the influence of the work carried out to his pupils still dominates investigation in all branches of immunity and the practical use of the knowledge obtained therefrom.

The side-chain theory is so well known that it is not necessary to restate it except in the most succinct form. A toxin or other antigen is without action on the animal body unless bound by molecular chains in the cells—receptors. But when so bound, the antigen causes injury to the cell, and subsequent repair, in the course of which there is an overproduction of receptors, which, passing into the blood and lymph, constitute the antibody for the antigen in question, because the antigen is now bound and neutralized or destroyed before it can reach the cell. As expressed by Behring, antibodies are free cell receptors, and the elements which, when situated in the cells, are essential for the action of toxins, for instance, are also the means of healing when free in the blood. In accord with the principles of this theory, Ehrlich's vivid mind coined numerous new words, which proved helpful in the discussion of new facts and ideas, and which soon passed into current international usage.

Ehrlich's last work was the development of the experimental chemotherapy of syphilis and certain other spirochetal infections. To discuss this wonderful work fully in all its ramifications is not possible at this time. The scientific world has accepted "the development through a lengthy series of systematic biochemical experiments, based on original conceptions of the affinities of cellular constituents, of a successful chemotherapy of important human infections, by direct attack on the parasites by substances specially built up for that purpose and introduced from without," as the fitting culmination of the tireless activities of an altogether unique investigative spirit. As pointed out elsewhere, Ehrlich's results in experimental chemotherapy fully justify Huxley's prediction in 1881 that through discoveries in therapeutics it would become possible "to introduce into the economy a molecular mechanism which, like a cunningly contrived torpedo, shall find its way to some particular group of living elements and cause an explosion among them, leaving the rest untouched.

Paul Ehrlich will live in the history of civilization as one of the great investigators, genial, creative, fertile, excelling in "that boldness of the scientific use of the imagination which alone can extend beyond the obvious fact and reveal the unknown," one of the great benefactors of mankind.

He was elected a foreign associate of the National Academy of Sciences in 1904.

(Extract from Science, n. s., vol. 42, p. 332.)

ANNUAL REPORT OF THE TREASURER.

JANUARY 1 TO DECEMBER 31, 1915.

To the PRESIDENT OF THE NATIONAL ACADEMY OF SCIENCES:

SIR: I have the honor to submit the following report as treasurer for the fiscal year, January 1 to December 31, 1915. Before presenting the detailed statements of the report, some special features of the financial transactions of the year will be mentioned:

The income of the academy during the year, from dues, investments, subscriptions to Proceedings, contributions to the Proceedings fund and William Ellery Hale lectureship, was $15,685.03; the expenditures, exclusive of investments, amounted to $9,115.34.

The sum of investments held by the academy on December 31 was $228,071.85 (price paid), yielding on that date at the rate of 4.98 per cent. The total income from investments received during the year was $11,476.31.

Changes in investments may be summarized as follows: Eight first-mortgage notes on real estate, amounting to $8,000, were paid in full, one was curtailed by the payment of $1,000, and one bond of $1,000 was called and paid; bonds were purchased to the amount of $8,307.50 (face value, $8,500).

The academy has now received the full amount of $10,000, bequeathed to it by the late O. C. Marsh, the final payment of $750 having been received during the year.

The special fund contributed by members and friends of the academy toward the expenses of the publication of the Proceedings amounts to $1,148.70.

Payments made on grants from various funds, in aid of research and for medals, amounted to $6,915.56.

TRUST FUNDS OF THE ACADEMY.

The trust funds of the academy, the income of which is administered for specific purposes, are enumerated below. The capital of certain funds has been increased beyond the amount of the original gift or bequest, by the transfer of accumulated income, at the request of the donors or by action of the academy.

Bache fund: Bequest of Alexander Dallas Bache, a member of the academy, 1870. To aid researches in physical and natural sciences........	$56,000.00
Watson fund: Bequest of James C. Watson, a member of the academy, 1874. For the promotion of astronomical science through the award of the Watson gold medal and grants of money in aid of research.......	25,000.00

Draper fund: Gift of Mrs. Henry Draper, 1883, in memory of her husband, a former member of the academy. To found the Henry Draper gold medal, to be awarded for notable investigations in astronomical physics. The balance of income is applied to aid research in the same science	$10,000.00
Smith fund: Gift of Mrs. J. Lawrence Smith, 1884, in memory of her husband, a former member of the academy. To found the J. Lawrence Smith gold medal, to be awarded for important investigations of meteoric bodies and to assist, by grants of money, researches concerning such objects	10,000.00
Gibbs fund: Established by a gift of Wolcott Gibbs, a member of the academy, 1892, and increased by a bequest of the late Morris Loeb, 1914. For the promotion of researches in chemistry	5,500.00
Gould fund: Gift of Miss Alice Bache Gould, 1897, in memory of her father, a former member of the academy. For the promotion of researches in astronomy	20,000.00
Comstock fund: Gift of Gen. Cyrus B. Comstock, a member of the academy, 1907. To promote researches in electricity, magnetism or radiant energy, through the Comstock prize, of money, to be awarded once in five years for notable investigations. The fund is to be increased ultimately to $15,000	11,337.50
Marsh fund: Bequest of Othniel Charles Marsh, a member of the academy, 1909. To promote original research in the natural sciences	10,127.65
Murray fund: A gift from Sir John Murray, 1911, to found the Alexander Agassiz gold medal, in honor of a former member and president of the academy, to be awarded for original contributions to the science of oceanography	6,000.00
Hartley fund: A gift from Mrs. Helen Hartley Jenkins, 1913–14, in memory of her father, Marcellus Hartley, to found the medal of the academy awarded for eminence in the application of science to the public welfare	1,168.00

The sum of $1,168 is the balance of the original gift left after defraying all expenses of the first award of this medal. By action of the academy, the fund will be increased to $1,200 from accumulated income.

In addition to the above-named trust funds the academy holds the following:

Agassiz fund: Bequest of Alexander Agassiz, a member of the academy, 1910, for the general uses of the academy	$50,000.00
Building fund: A gift from Alexander Agassiz and Theodore N. Gill, former members of the academy, together with accumulated income, toward a building for the academy	8,957.02

CONDENSED STATEMENT OF RECEIPTS AND EXPENDITURES, 1915.

RECEIPTS.

Balance, Jan. 1, 1915, as per last report	$11,281.00
Total income from investments during 1915	11,476.31
Annual dues:	
1913	5.00
1914	30.00
1915	645.00
Interest on bank deposits	211.80
William Ellery Hale lectureship	1,000.00

Refund from general fund to Hale lectureship	$95.62
Return from Hale lectureship to general fund	495.62
Contributions to Proceedings	1,990.00
Subscriptions to Proceedings	538.72
Reprints and separate numbers of Proceedings	376.81
Addition to Marcellus Hartley fund	75.00
Mortgage notes paid	9,000.00
Bond called in	1,000.00
Return from Murray fund to general fund	300.00
Return unexpended balance B. O. Peirce grant, No. 175, to Bache fund.	325.03
Balance of bequest from estate of O. C. Marsh	750.00
	39,595.91

EXPENDITURES.

Investment of capital		6,852.50
Investment of income		1,455.00
Accrued interest, account changes of investments		110.36
Payments from trust and other special funds:		
Bache fund—		
R. W. Hegner	$159.96	
J. Voûte	401.00	
H. H. Lane	500.00	
E. J. Werber	230.00	
H. S. Jennings	200.00	
H. W. Norris	100.00	
P. W. Bridgman	500.00	
Draper fund—		
Joel Stebbins (medal)	214.60	
W. W. Campbell	500.00	
S. A. Mitchell	250.00	
Frank Schlesinger	400.00	
Gibbs fund—		
Mary E. Holmes	100.00	
Gould fund—		
Astronomical Journal	1,000.00	
R. W. Wood	200.00	
A. Van Maanen	100.00	
Hale lectureship—		
T. C. Chamberlin honorarium	300.00	
Return to general fund	495.62	
M. Hartley fund—		
Balance on dies and two medals	432.00	
Murray fund—		
Agassiz medal—Return to general fund	300.00	
Smith fund—		
S. A. Mitchell	500.00	
Watson fund—		
A. O. Leuschner	480.00	
J. E. Mellish	300.00	
John A. Miller	380.00	
Mrs. A. H. Watson	100.00	
		8,143.18

General expenses:		
Bache fund—		
Printing blank applications	$8.75	
Proceedings—		
Salary, managing editor	750.00	
Printing and distributing	2,977.37	
Expenses, office of editor	315.70	
Miscellaneous expenses	257.60	
General fund—		
Salary, assistant secretary and treasurer	600.00	
Treasurer's office (auditing, bond, printing, etc.)	125.00	
Home secretary's office (clerical help, printing constitution, lists of members, circulars, etc.)	688.10	
Foreign secretary's office	66.01	
Memoirs, printing, etc	1,266.84	
Refund to Hale lectureship fund	95.62	
Meetings—		
Annual meeting, lunches, etc	639.33	
Postage and telegrams	61.75	
Election of members (printing diplomas, etc.)	35.65	
		$7,887.72
Cash balance in bank, Dec. 31, 1915:[1]		
Cash income balance		12,228.35
Uninvested capital		2,918.80
		39,595.91

Unpaid dues: 1914, $10; 1915, $70; total, $80.

STATEMENTS OF ASSETS AND LIABILITIES, DECEMBER 31, 1915.

ASSETS.

1. Mortgage notes, secured by first mortgages on real estate		$105,750.00
2. Bonds, giving name, face value, rate of interest, and cost:		
12 Broadway Realty Co. first, 5 per cent gold, due Sept. 1, 1926. Purchase money. 12 at $1,000. Nos. 38, 50, 796, 963–5, 1068, 1616–20	$12,335.00	
10 Bush Terminal Building Co. first-mortgage 50-year sinking fund, 5 per cent gold bonds, due Apr. 1, 1960. 10 at $1,000. Nos. 1383–7 and 2805–9	9,850.00	
5 Chesapeake & Ohio general mortgage, 4.5's, gold bonds, due Mar. 1, 1992. 5 at $1,000. Nos. 15350, 15351, 15352, 15353, 15354	4,556.25	
4 City of Tacoma Green River special water fund No. 2, 5 per cent, due Oct. 1, 1939. 4 at $1,000, Nos. 1508, 1509, 1510, 1511	4,150.60	
7 Cleveland Electric & Illuminating Co. first-mortgage 5 per cent gold bonds, due Apr. 1, 1939. 4 at $500 and 3 at $1,000 each. Nos. M6060, M6096, M6097, D261, D262, D263, D264	5,100.00	
20 Cosmos Club 4.5 per cent bonds, due July 1, 1949. 20 at $1,000. Nos. 286–299, 301–305, 350	20,000.00	
7 Detroit Edison Co. 5's, first mortgage, 30-year gold, due Jan. 1, 1933. 7 at $1,000. Nos. 557, 2442, 2443, 3024, 3252, 3253, 8086	7,180.00	

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[1] Two outstanding checks, $63.33.

2. Bonds, etc.—Continued.

5 Dominion Coal Co. (Ltd.) first-mortgage sinking-fund gold bonds, 5 per cent, due May 1, 1940. 5 at $1,000. Nos. A1036–A1040	$5,000.00	
2 Georgia Railway & Electric Co. first consolidated mortgage, 5's, sinking fund, gold, due Jan. 1, 1932. 2 at $1,000. Nos. 1061, 1600	2,060.00	
13 Government of the Province of Alberta bonds, 4.5 per cent, 10-year gold debenture, due Dec. 1, 1923. 2 at $500 and 11 at $100. Nos. 2031 and 2032, 1501–1511	2,021.25	
6 Government of the Province of Alberta bonds, 5 per cent, 10-year gold debenture, due May 1, 1925. 1 at $1,000 and 5 at $500. Nos. 2364, B189–B195.	3,395.00	
1 Government of the Province of Alberta bond, 4.5 per cent, 10-year gold debenture, due Feb. 1, 1924. 1 at $500. No. 2620	481.25	
6 Milwaukee Railway & Electric Light Co. general and refunding mortgage gold bond, series A, 5 per cent, due Dec. 1, 1951. 6 at $1,000. Nos. 2772, 5222, 5223, 5224, 3839, 3840	5,480.00	
6 Minneapolis General Electric Co. 5 per cent 30-year gold mortgage bonds, due Dec. 1, 1934. 6 at $1,000. Nos. 1621, 1622, 1949, 2004, 7579, 7580	6,080.00	
4 Niagara Falls Power Co. first mortgage, 5's, gold coupon bonds, due Jan. 1, 1932. 4 at $1,000. Nos. 5246, 5247, 6583, 8358	4,100.00	
20 Riggs Realty Co. 3/30-year coupon bond, first, 5's, due Oct. 1, 1940. 20 at $1,000. Nos. 56, 60, 76, 80, etc., to 144	20,705.00	
9 Southern Bell Telephone & Telegraph Co. 30-year, first mortgage, 5's, sinking fund, gold bonds. Due Jan. 1, 1941. 9 at $1,000. Nos. M9739 M11576, M11577, M11578, M11579, M13965, M15568, M15569, M15570	8,817.50	
1 Union Electric Light & Power Co. of St. Louis, first, 5's, due Sept. 1, 1932. 1 at $1,000. No. 4169.	1,010.00	
		$122,321.85
3. Bank balance, Dec. 31, 1915 [1]		15,147.15
		243,219.00

LIABILITIES.

	Income.	Capital.
General fund:		
Invested	$4,700.00	....
Uninvested	2,139.95	....
Agassiz fund:		
Invested		$49,900.60
Uninvested		100.00
Bache fund:		
Invested	2,575.00	55,917.95
Uninvested	3,832.57	82.05

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[1] Two outstanding checks, $63.13.

	Income.	Capital.
Building fund:		
Invested	$1,562.50	$5,490.00
Uninvested	391.53	1,510.00
Comstock fund:		
Invested	677.50	11,315.00
Uninvested	708.82	22.50
Draper fund:		
Invested	1,035.00	10,000.00
Uninvested	1,247.06	
Gibbs fund:		
Invested		5,457.50
Uninvested	345.77	42.50
Gould fund:		
Invested	4,057.50	19,953.75
Uninvested	859.65	46.25
Marsh fund:		
Invested	677.50	9,377.65
Uninvested	271.88	750.00
Murray fund:		
Invested		5,965.00
Uninvested		35.00
Smith fund:		
Invested	1,532.50	9,895.00
Uninvested	762.27	105.00
Watson fund:		
Invested	1,020.00	24,922.50
Uninvested	92.65	77.50
Marcellus Hartley fund:		
Invested		1,020.00
Uninvested	147.50	148.00
William Ellery Hale lectureship:		
Invested		
Uninvested	300.00	
Proceedings:		
Invested	1,020.00	
Uninvested	1,128.70	
Total	31,085.85	212,133.15
		31,085.85
		243,219.00

ACCOUNT WITH INDIVIDUAL FUNDS JAN. 1 TO DEC. 31, 1915.

	General fund.		Building fund.	
	Income.	Capital.	Income.	Capital.
Balance Jan. 1, 1915:				
Cash	$1,416.65		$437.53	$10.00
Invested	5,200.00		1,077.50	6,990.00
Receipts:				
Interest on investments	2,759.18		441.99	
Interest on deposits	211.80			
Murray fund return	300.00			
Annual dues—				
1913	5.00			
1914	30.00			
Hale lectureship return	495.62			
Total	10,418.25		1,957.02	7,000.00
Disbursements:				
General expenses	3,482.68			
Hale lectureship refund	95.62			
Accrued interest			2.99	
Balance Dec. 31, 1915:				
Cash	2,139.95		391.53	1,510.00
Invested	4,700.00		1,562.50	5,490.00
Total	10,418.25		1,957.02	7,000.00
Mortgage paid	500.00			1,500.00
Investment made			485.00	

	Agassiz fund.		Bache fund.	
	Income.	Capital.	Income.	Capital.
Balance Jan. 1, 1915:				
Cash		$100.00	$2,552.81	$67.05
Invested		49,900.00	2,575.00	55,932.95
Receipts:				
Interest on investments			3,057.43	
Return estate of B. O. Peirce			325.03	
Total		50,000.00	8,510.27	56,000.00
Disbursements:				
Warrants			2,090.96	
General expenses			8.75	
Accrued interest			2.99	
Balance Dec. 31, 1915:				
Cash		100.00	3,832.57	82.05
Invested		49,900.00	2,575.00	55,917.95
Total		50,000.00	8,510.27	56,000.00
Mortgage paid				500.00
Investment made				485.00

Account with individual funds Jan. 1 to Dec. 31, 1915—Continued.

	Comstock fund.		Draper fund.	
	Income.	Capital.	Income.	Capital.
Balance Jan. 1, 1915:				
Cash	$620.81	$22.50	$1,018.33	
Invested	192.50	11,315.00	2,035.00	$10,000.00
Receipts:				
Interest on investments	576.00		593.33	
Total	1,389.31	11,337.50	3,646.66	10,000.00
Disbursements:				
Warrants			1,150.00	
Medal			214.60	
Accrued interest	2.99			
Balance Dec. 31, 1915:				
Cash	708.82	22.50	1,247.06	
Invested	677.50	11,315.00	1,035.00	10,000.00
Total	1,389.31	11,337.50	3,646.66	10,000.00
Mortgage paid			1,000.00	
Investment made	485.00			

	Gibbs fund.		Gould fund.	
	Income.	Capital.	Income.	Capital.
Balance Jan. 1, 1915:				
Cash	$164.49	$27.50	$1,062.14	$18.75
Invested		5,472.50	4,057.50	19,981.25
Receipts:				
Interest on investments	284.27		1,186.11	
Total	448.76	5,500.00	6,305.75	20,000.00
Disbursements:				
Warrants	100.00		1,300.00	
Accrued interest	2.99		88.60	
Balance Dec. 31, 1915:				
Cash	345.77	42.50	859.65	46.25
Invested		5,457.50	4,057.50	19,953.75
Total	448.76	5,500.00	6,305.75	20,000.00
Mortgages paid		500.00		5,000.00
Investments made		485.00		4,972.50

Account with individual funds Jan. 1 to Dec. 31, 1915—Continued.

	Marsh fund.		Murray fund.	
	Income.	Capital.	Income.	Capital.
Balance Jan. 1, 1915:				
Cash	$425.87			$35.00
Invested	192.50	$9,377.65		5,965.00
Receipts:				
Interest on investments	334.00		$300.00	
Estate of O. C. Marsh		750.00		
Total	952.37	10,127.65	300.00	6,000.00
Disbursements:				
Return to general fund			300.00	
Accrued interest	2.99			
Balance Dec. 31, 1915:				
Cash	271.88	750.00		35.00
Invested	677.50	9,377.65		5,965.00
Total	952.37	10,127.65	300.00	6,000.00
Investment made	485.00			

	Smith fund.		Watson fund.	
	Income.	Capital.	Income.	Capital.
Balance Jan. 1, 1915:				
Cash	$696.58	$15.00	$81.15	$77.50
Invested	1,532.50	9,985.00	1,020.00	24,922.50
Receipts:				
Interest on investments	572.50		1,271.50	
Total	2,801.58	10,000.00	2,372.65	25,000.00
Disbursements:				
Warrants	500.00		1,260.00	
Accrued interest	6.81			
Balance Dec. 31, 1915:				
Cash	762.27	105.00	92.65	77.50
Invested	1,532.50	9,895.00	1,020.00	24,922.50
Total	2,801.58	10,000.00	2,372.65	25,000.00
Bond paid		1,000.00		
Investment made		910.00		

Account with individual funds Jan. 1 to Dec. 31, 1915—Continued.

	Proceedings.		Hale lectureship.	
	Income.	Capital.	Income.	Capital.
Balance, Jan. 1, 1915:				
Cash	$1,828.84			
Invested	1,020.00			
Receipts:				
Interest on investments	50.00			
Contribution to Hale lectureship			$1,000.00	
Reprints and separate numbers	376.81			
Contribution to Proceedings	1,990.00			
Subscriptions, 1915	494.22			
Subscriptions, 1916	44.50			
Annual dues, 1915	645.00			
Hale lectureship refund			95.62	
Total	6,449.37		1,095.62	
Disbursements:				
General expenses	4,300.67			
Return to General fund			495.62	
Honorariums			300.00	
Balance, Dec. 31, 1915:				
Cash	1,128.70		300.00	
Invested	1,020.00			
Total	6,449.37		1,095.62	

	Hartley fund.	
	Income.	Capital.
Balance, Jan. 1, 1915:		
Cash	$22.50	$580.00
Invested		1,020.00
Receipts:		
Interest on investments	50.00	
Contribution to public welfare medal	75.00	
Total	147.50	1,600.00
Disbursements:		
General expenses		432.00
Balance, Dec. 31, 1915:		
Cash	147.50	148.00
Invested		1,020.00
Total	147.50	1,600.00

WHITMAN CROSS,
Treasurer.

JANUARY 5, 1916.

REPORT OF THE AUDITING COMMITTEE.

WASHINGTON, D. C., *January 14, 1916.*

We hereby certify that we have examined the securities and papers contained in the box of the National Academy of Sciences at the American Security & Trust Co.'s building and have found them to correspond with the list checked by the auditing committee on January 15, 1915.

We find that the coupons due in 1915 have been cut and are accounted for; also that the coupons due January 1, 1916, have been detached and are accounted for by an appropriate entry in the pass book. We have accepted the certified statement of the Capital Audit Co. as to the correspondence between the vouchers, pass book, and accounts of the treasurer and as to the balance shown by the books of the treasurer on December 31, 1915, and certify to its agreement with the balance shown by the report of the treasurer, by his check book and by the American Security & Trust Co.

W. H. DALL.
F. W. CLARKE.

APPENDICES.

APPENDIX A.

CONSTITUTION OF THE NATIONAL ACADEMY.

As amended and adopted April 17, 1872, and further amended April 20, 1875; April 21, 1881; April 19, 1882; April 18, 1883; April 19, 1888; April 18, 1895; April 20, 1899; April 17, 1902; April 18, 1906; November 20, 1906; April 17, 1907; November 20, 1907; April 20, 1911; April 16, 1912; April 21, 1915.

PREAMBLE.

Empowered by the act of incorporation enacted by Congress, and approved by the President of the United States on the 3d day of March, A. D. 1863, and in conformity with amendments to said act approved July 14, 1870, June 20, 1884, and May 27, 1914, the National Academy of Sciences adopts the following amended constitution and rules:

ARTICLE I.—OF MEMBERS.

SECTION 1. The academy shall consist of members, honorary members, and foreign associates. Members must be citizens of the United States.

SEC. 2. Members who, from age or inability to attend the meetings of the academy, wish to resign the duties of active membership, may, at their own request, be transferred to the roll of honorary members by a vote of the academy.

SEC. 3. The academy may elect 50 foreign associates.

SEC. 4. Honorary members and foreign associates shall have the privilege of attending the meetings and of reading and communicating papers to the academy, but shall take no part in its business, shall not be subject to its assessments, and shall be entitled to a copy of the publications of the academy.

ARTICLE II.—OF THE OFFICERS.

SECTION 1. The officers of the academy shall be a president, a vice president, a foreign secretary, a home secretary, and a treasurer, all of whom shall be elected for a term of six years, by a majority of votes present, at the first stated meeting after the expiration of the current terms, provided that existing officers retain their places until their successors are elected. In case of a vacancy, the election for six years shall be held in the same manner at the meeting when such vacancy occurs, or at the next stated meeting thereafter, as the academy may direct. A vacancy in the office of treasurer or home secretary may, however, be filled by appointment of the president of the academy until the next stated meeting of the academy.

SEC. 2. The officers of the academy, together with six members to be elected by the academy, shall constitute a council for the transaction of such business as may be assigned to them by the constitution or the academy.

SEC. 3. The president of the academy, or, in case of his absence or inability to act, the vice president, shall preside at the meetings of the academy and of the council; shall name all committees except such as are otherwise especially provided for; shall refer investigations required by the Government of the United States to members especially conversant with the subjects and report thereon to the academy at its meeting next ensuing; and, with the council, shall direct the general business of the academy.

It shall be competent for the president, in special cases, to call in the aid, upon committees, of experts or men of special attainments not members of the academy.

The president shall be, *ex officio*, a member of all committees empowered to consider questions referred to the academy by the Government of the United States.

SEC. 4. The foreign and home secretaries shall conduct the correspondence proper to their respective departments, advising with the president and council in cases of doubt, and reporting their action to the academy at one of the stated meetings in each year.

It shall be the duty of the home secretary to give notice to the members of the place and time of all meetings, of all nominations for membership, and of all proposed amendments to the constitution.

It shall be the duty of the home secretary to keep the minutes of each business and scientific session, and after approval to enter these upon the permanent records of the academy.

SEC. 5. The treasurer shall attend to all receipts and disbursements of the academy, giving such bond and furnishing such vouchers as the council may require. He shall collect all dues, assessments, and subscriptions, and keep a set of books showing a full account of receipts and disbursements and the condition of all funds of the academy. He shall be the custodian of the corporate seal of the academy.

ARTICLE III.—OF THE MEETINGS.

SECTION 1. The academy shall hold one stated meeting in each year, called the annual meeting, in the city of Washington, beginning on the third Monday in April, and another, called the autumn meeting, to be held at such place and time as the council shall determine.

Special business meetings of the academy may be called, by order of eight members of the council, at such place and time as may be designated in the call.

Special scientific meetings of the academy may be held at times and places to be designated by a majority of the council.

Sec. 2. The names of the members present at each session of a meeting shall be recorded in the minutes, and the members present at any session shall constitute a quorum for the transaction of business.

Sec. 3. Scientific sessions of the academy, unless otherwise ordered by a majority of the members present, shall be open to the public; sessions for the transaction of business shall be closed.

Sec. 4. Stated meetings of the council shall be held during the stated or special meetings of the academy and four members shall constitute a quorum for the transaction of business. Special meetings of the council may be convened at the call of the president and two members of the council, or of four members of the council.

Sec. 5. No member whose dues are in arrears shall vote at any business meeting of the academy.

ARTICLE IV.—OF ELECTIONS AND RESIGNATIONS.

Section 1. All elections of officers and members shall be by ballot, and each election shall be held separately.

Sec. 2. The time for holding an election of officers shall be fixed by the academy at least one day before the election is held.

Sec. 3. The election of the six members of the council shall be as follows:

At the annual meeting in April, 1907, six members of the council to be elected, of whom two shall serve for three years, two for two years, and two for one year, their respective terms to be determined by lot. Each year thereafter the terms of two members shall expire, and their successors, to serve for three years, shall be elected at the annual meeting in each year.

Sec. 4. The academy shall be divided by the council into sections representing the principal branches of scientific research. Each section shall elect its own chairman, who shall serve for three years. The chairman shall be responsible to the academy for the work of his section.

Nominations to membership in the academy shall be made in writing and approved by a majority of the members of the section on the branch of research in which the person nominated is eminent, or by a majority of the council in case there is no section on the subject. The nominations shall be sent to the home secretary by the chairman of the section before January 1 of the year in which the election is to be held, and each nomination shall be accompanied by a list of the principal contributions of the nominee to science. This list shall be printed by the home secretary for distribution among the members of the academy.

SEC. 5. Election of members shall be held at the annual meeting in Washington in the following manner: There shall be two ballots—a preference ballot, which may be prepared either before or at the annual meeting and must be transmitted to the home secretary, and a final ballot, to be taken at the meeting.

Preference ballot.—Each member may inscribe on a ballot not more than 15 names of nominees selected from the submitted list. A list of the nominees shall then be prepared, on which the names shall be entered in the order of the number of votes received by each. In case two or more nominees have the same number of votes on this preference list, the order in which they shall be placed on the list shall be determined by a majority vote of members present.

Final ballot.—A vote shall first be taken on the nominee who appears first on the preference list, and he shall be declared elected if he receive two-thirds of the votes cast and not less than 25 votes in all. A vote shall then be taken in similar manner on the nominee standing second on the preference list, and so on until all the nominees on the preference list shall have been acted on, or until 15 nominees shall have been elected or until the total membership of the academy shall have reached 250.

Not more than 15 members shall be elected at one annual meeting.

Before and during elections a discussion of the merits of nominees will be in order.

The election of members may be suspended at any time by a majority vote of the members present.

SEC. 6. Every member-elect shall accept his membership, personally or in writing, before the close of the next stated meeting after the date of his election. Otherwise, on proof that the secretary has formally notified him of his election, his name shall not be entered on the roll of members.

SEC. 7. Foreign associates may be nominated by the council and may be elected at the annual meeting by a two-thirds vote of the members present.

SEC. 8. A diploma, with the corporate seal of the academy and the signatures of the officers, shall be sent by the appropriate secretary to each member on his acceptance of membership, and to foreign associates on their election.

SEC. 9. Resignations shall be addressed to the president and acted on by the academy.

SEC. 10. Whenever a member has not paid his dues for four successive years, the treasurer shall report the fact to the council, which may report the case to the academy with the recommendation that the person thus in arrears be declared to have forfeited his membership. If this recommendation be approved by two-thirds of the members present, the said person shall no longer be a member of the academy and his name shall be dropped from the roll.

ARTICLE V.—SCIENTIFIC COMMUNICATIONS, PUBLICATIONS, AND REPORTS.

SECTION 1. Communications on scientific subjects shall be read at scientific sessions of the academy, and papers by any member may be read by the author or by any other member, notice of the same having been previously given to the secretary.

SEC. 2. Any member of the academy may read a paper from a person who is not a member, and shall not be considered responsible for the facts or opinions expressed by the author, but shall be held responsible for the propriety of the paper.

Persons who are not members may read papers on invitation of the council or of the committee of arrangements.

SEC. 3. The academy may provide for the publication, under the direction of the council, of proceedings, scientific memoirs, biographical memoirs, and reports.

The proceedings shall include the transactions of the academy, brief original announcements of the results of scientific investigations made by members of the academy or others, together with short original articles giving a comprehensive survey of the more important scientific researches currently made by American investigators, and other matters of general scientific interest.

The scientific memoirs shall provide opportunity for the publication of longer and more detailed scientific investigations.

The biographical memoirs shall contain an appropriate record of the life and work of deceased members of the academy.

An annual report shall be presented to Congress by the president, and shall contain the annual reports of the treasurer and the auditing committee, a suitable summary of the reports of the committees in charge of trust funds, and a record of the activities of the academy for the calendar year immediately preceding and other appropriate matter. This report shall be presented to Congress by the president after authorization by the council. It shall also be presented to the academy at the annual meeting next following.

The treasurer shall prepare a full report of the financial affairs of the academy at the end of the fiscal year. This report shall be submitted to the council for approval and afterwards presented to the academy at the annual meeting.

SEC. 4. Propositions for investigations or reports by the academy shall be submitted to the council for approval, except those requested by the Government of the United States, which shall be acted on by the president, who will in such cases report their results to the Government as soon as obtained and to the academy at its next following stated meeting.

SEC. 5. The advice of the academy shall be at all times at the disposition of the Government upon any matter of science or art within its scope.

ARTICLE VI.—OF THE PROPERTY OF THE ACADEMY.

SECTION 1. All investments and reinvestments of either principal or accumulations of income of the trust and other funds of the academy shall be made by the treasurer, with the approval of the finance committee, in the corporate name of the academy, in the manner and in the securities designated or specified in the instruments creating the several funds, or, in the absence of such designation or specification, in bonds of the United States or of the several States, or in bonds or notes secured by first mortgages on real estate, in investments legal for savings banks under the laws of Massachusetts or New York, or in other bonds recommended to the treasurer by the fiscal advisers of the academy.

The treasurer may invest the capital of all trust funds of the academy which are not required by the instruments creating such funds to be kept separate and distinct, in a consolidated fund, and shall apportion the income received from such consolidated fund among the various funds composing the same in the proportion that each of said funds shall bear to the total amount of funds so invested; provided, however, that the treasurer shall at all times keep accurate accounts showing the amount of each trust fund, the proportion of the income from the consolidated fund to which it is entitled, and the expenses and disbursements properly chargeable to such fund.

SEC. 2. The council shall at its annual meeting in each year designate one bank or trust company in Washington, D. C., and one in New York City, to act, when requested by the treasurer, as the fiscal advisers of the academy.

SEC. 3. The treasurer shall have authority, with the approval of the finance committee, to sell, transfer, convey, and deliver in the corporate name and for the benefit of the academy any stocks, bonds, or other securities standing in the corporate name.

SEC. 4. No contract shall be binding upon the academy which has not been first approved by the council.

SEC. 5. The assessments required for the support of the academy shall be fixed by the academy on the recommendation of the council and shall be payable within the calendar year for which they are assessed.

ARTICLE VII.—OF TRUST FUNDS AND THEIR ADMINISTRATION.

SECTION 1. Devises, bequests, donations, or gifts having for their object the promotion of science or the welfare of the academy may be accepted by the council for the academy. Before the acceptance of any such trust the council shall consider the object of the trust and all conditions or specifications attaching thereto. The council shall make a report of its action to the academy.

SEC. 2. Medals and prizes may be established in accordance with the provisions of trusts or by action of the academy.

SEC. 3. Unless otherwise provided by the deed of gift, the income of each trust fund shall be applied to the objects of that trust by the action of the academy on the recommendation of a standing committee on that fund.

ARTICLE VIII.—OF ADDITIONS AND AMENDMENTS.

Additions and amendments to the constitution shall be made only at a stated meeting of the academy. Notice of a proposition for such a change must be submitted to the council, which may amend the proposition, and shall report thereon to the academy. Its report shall be considered by the academy in committee of the whole for amendment.

The proposition as amended, if adopted in committee of the whole, shall be voted on at the next stated meeting, and if it receives two-thirds of the votes cast it shall be declared adopted.

Absent members may send their votes on pending changes in the constitution to the home secretary in writing, and such votes shall be counted as if the members were present.

APPENDIX B.

RULES.

(In accordance with a resolution of the academy, taken at its meeting on April 21, 1915, the rules are arranged in groups and each group is numbered to correspond with the article of the constitution to which it relates.)

I.

1. The holders of the medal for eminence in the application of science to the public welfare shall be notified, like members, of the meetings of the academy, and invited to participate in its scientific sessions.

II.

1. The proper secretary shall acknowledge all donations made to the academy, and shall at once report them to the council for its consideration.

2. The home secretary shall be the custodian of all books, apparatus, archives, and collections not explicitly assigned to other care.

3. The home secretary shall keep a record of all grants of money or awards of prizes or medals made from trust funds of the academy. The record for each grant of money shall include the following items:

1. Name of fund.
2. Date and number of the grant.
3. Name and address of recipient.
4. Amount of grant and date or dates of payment.
5. Purpose of grant.
6. Record or report of progress.
7. Resulting publications.

4. The treasurer shall keep the home secretary informed of all warrants received from directors of trust funds not controlled by the academy and of the date or dates of payment of all warrants.

5. The treasurer is authorized to defray, when approved by the president, all the proper expenses of committees appointed to make scientific investigations at the request of departments of the Government, and in each case to look to the department requesting the investigation for reimbursement to the academy.

III.

1. At the business sessions of the academy the order of procedure shall be as follows:

   1. Chair taken by the president, or, in his absence, by the vice president.
   2. Roll of members called by home secretary (first session of the meeting only).
   3. Minutes of the preceding session read and approved.
   4. Stated business.
   5. Reports of president, secretaries, treasurer, and committees.
   6. Business from council.
   7. Other business.

2. The rules of order of the academy shall be those of the Senate of the United States, unless otherwise provided by the constitution or rules of the academy.

3. In the absence of any officer a member shall be chosen to perform his duties temporarily, by a plurality of *viva voce* votes, upon open nomination.

4. At each meeting the president shall announce the death of any members since the preceding meeting. As soon as practicable thereafter he shall designate a member to write—or to secure from some other source approved by the president—a biographical notice of each deceased member.

5. A standing committee of three members called the program committee, a local committee of five members appointed for each meeting, and the home secretary shall together constitute the committee of arrangements, of which the home secretary shall be chairman.

The term of service on the program committee shall be three years, one member retiring annually, the chairman to be designated by the president.

It shall be the duty of the program committee to prepare the scientific program for the annual meeting, and for this purpose it shall be empowered to solicit papers from members or others. It shall also be empowered to ascertain the length of time required for reading papers to be presented at the scientific sessions of the academy, and, when it appears advisable, to limit the time to be occupied in their presentation or discussion.

The local committee shall meet not less than two months previous to each meeting. It shall prepare the detailed program of each day, and in general shall have charge of all business and scientific arrangements for the meeting for which it is appointed except those specifically assigned to the program committee in the case of the annual meeting.

IV.

1. The term of service of each chairman of a section shall be three years, to date from the closing session of the April meeting next following his election. Chairmen of sections shall be chosen by mail ballot, the member receiving the highest number of votes cast to be deemed elected. It shall be the duty of each retiring chairman to conduct the election of his successor and to report the result of the election to the home secretary before the April meeting at which his term of service expires. Should any section fail to elect a chairman before November 1, the president is empowered to appoint a temporary chairman to serve until the April meeting next following. No chairman shall be eligible for reelection for two consecutive terms.

2. The chairman of each section of the academy shall submit to the members of his section, not later than November 1 of each year, a ballot containing the names of all those persons who received not less than two votes in the nominating ballot of the preceding year and of any other persons who were newly proposed for consideration at that time. Each member of the section shall be expected to return this ballot to the chairman within two weeks with his signature and with crosses placed against the names of those persons whom he is prepared to endorse for nomination. Each member may also write upon the ballot in a place provided for the purpose any new names which he desires to have included in the ballot to be submitted to the section in the following year. The vote resulting from this ballot shall be regarded as informal.

The chairman shall then submit to the members of his section a new ballot showing the results of the informal vote; and each member shall be expected to return this ballot to the chairman with his signature and with crosses placed against the names of those persons whom he will endorse for nomination.

The chairman shall then certify to the home secretary, prior to January 1, the names of those persons who have been voted for on this second ballot by a majority of the members of the section, and shall furnish him a list of the publications of these nominees, as required by the constitution.

3. Nominations for membership shall give the full name, residence, and the official positions successively held by the candidate, in addition to the list of his contributions to science required by the constitution.

4. Preference ballots for election of members shall be sealed in a blank envelope, which shall be inclosed in another bearing the name of the sender, and which shall be addressed to the home secretary. Such envelopes shall be opened only by the tellers. If in any case the

tellers are unable to determine who cast a ballot, or if the latter contains more names than are to be voted for, the ballot shall be rejected, but minor defects in a ballot shall be disregarded when the intent of the voter is obvious.

5. All discussions of the claims and qualifications of nominees at meetings of the academy shall be held strictly confidential, and remarks and criticisms then made may be communicated to no person who was not a member of the academy at the time of the discussion.

V.

1. The publication of the Proceedings shall be under the general charge of the council, which shall have final jurisdiction upon all questions of policy relating thereto. The preparation of the Proceedings for publication shall be entrusted to an editorial board. This board shall consist of a chairman and a managing editor, both of whom shall be appointed by the council for definite terms of service; of the home secretary and foreign secretary *ex officiis*, and of a body of associate editors representing the various branches of science which are to be included in the scope of the proceedings. The managing editor, who may be a non-member of the academy, shall receive a salary, which shall be fixed by the council. It shall be the duty of the managing editor to prepare the proceedings in detail for publication; but the chairman of the editorial board shall decide, in consultation with the managing editor, in regard to the acceptance, rejection, or substantial modification of papers offered for publication. The associate editors shall be appointed by the council, upon recommendation of the chairman of the editorial board, for a period of three years, one-third of them retiring annually. The home secretary and the foreign secretary shall be responsible for the distribution of the proceedings in their respective fields.

2. Memoirs may be presented at any time to the home secretary, who shall report the date of their reception at the next session; but no memoir shall be published unless it has been read or presented by title before the academy.

Before publication all biographical and scientific memoirs must be referred to the committee on publication, who may, if they deem best, refer any memoir to a special committee appointed by the president to determine whether the same should be published by the academy.

3. Memoirs shall date, in the records of the academy, from the date of their presentation to the academy, and the order of their presentation shall be so arranged by the secretary that, so far as may be convenient, those upon kindred topics shall follow one another.

4. The annual report of the treasurer shall contain:
    1. A concise statement of the source, object, and amount of all trust funds of the academy.
    2. A condensed statement of receipts and expenditures.
    3. A statement of assets and liabilities.
    4. Accounts with individual funds.
    5. Such other matter as he considers appropriate.

5. The accounts of the treasurer shall, between January 1 and January 15 of each year, be audited by a committee of three members to be appointed by the president at the autumn meeting of the academy. It shall be the duty of the auditing committee to verify the record of receipts and disbursements maintained by the treasurer and the agreement of book and bank balances; to examine all securities in the custody of the treasurer and to compare the stated income of such securities with the receipts of record; to examine all vouchers covering disbursements for account of the academy and the authority therefor and to compare them with the treasurer's record of expenditures; to examine and verify the account of the academy with each trust fund. The auditing committee may employ an expert accountant to assist the committee in the examination of the books of the treasurer. The annual report of the treasurer shall be published with that of the president to Congress. The reports of the treasurer and auditing committee shall be presented to the academy at the annual meeting.

VI.

1. All apparatus and other materials of permanent value purchased with money from any grant from a trust fund shall be the property of the academy unless specific exception is made in the grant or by subsequent action of the council or the directors of the trust fund concerned. Receipts for all such property shall be signed by the grantee and shall be forwarded to the home secretary. All apparatus and unused material of value acquired in this way shall be delivered to the home secretary on completion of the investigation for which the grant was made, or at any time on demand of the council, and the home secretary shall give an appropriate release therefor.

2. The books, apparatus, archives, and other collections of the academy shall be deposited in some safe place in the city of Washington. A list of the articles so deposited shall be kept by the home secretary, who is authorized to employ a clerk to take charge of them.

3. A stamp corresponding to the corporate seal of the academy shall be kept by the secretaries, who shall be responsible for the due marking of all books and other objects to which it is applicable.

Labels or other proper marks of similar device shall be placed upon objects not admitting of the stamp.

4. The fiscal year of the academy shall end on December 31 of each year.

5. The standing committee on finance shall consist of the treasurer *ex officio* as chairman and two members to be appointed annually by the president.

VII.

1. Standing committees of the academy on trust funds the income of which is applied to the promotion of research shall consist of three or five members. In order to secure rotation in office in such committees, when not in conflict with the provisions of the deeds of gift, the term of service on a committee of three members shall be three years; on a committee of five members the term shall be five years.

2. The annual reports of the committees on research funds shall, so far as the academy has authority to determine their form, give a current number to each award, stating the name, position, and address of the recipient, the subject of research for which the award is made, and the sum awarded; and in later annual reports the status of the work accomplished under each award previously made shall be announced, until the research is completed, when announcement of its completion and, if published, the title and place of publication shall be stated, and the record of the award shall be reported as closed.

VIII.

1. Any rule of the academy may be amended, suspended, or repealed on the written motion of any two members, signed by them, and presented at a stated meeting of the academy, provided the same shall be approved by a majority of the members present.

APPENDIX C.

ORGANIZATION OF THE ACADEMY, 1915–16.

	Expiration of term.
WELCH, WILLIAM H., *President*	April, 1919
WALCOTT, CHARLES D., *Vice President*	April, 1919
HALE, GEORGE E., *Foreign Secretary*	April, 1916
DAY, ARTHUR L., *Home Secretary*	April, 1919
CROSS, WHITMAN, *Treasurer*	April, 1917

ADDITIONAL MEMBERS OF COUNCIL.

1913–1916.

CHITTENDEN, R. H.
WILSON, EDMUND B.

1914–1917.

CONKLIN, E. G.
NOYES, A. A.

1915–1918.

COULTER, J. M.
HOWELL, W. H.

SECTIONS.

1. MATHEMATICS.

BÔCHER, MAXIME
BOLZA, OSKAR
DICKSON, L. E.
MOORE, E. H.
(*Acting Chairman*)
MOULTON, F. R.
OSGOOD, W. F.
STORY, W. E.
VAN VLECK, E. B.
WEBSTER, A. G.
WHITE, H. S.
WOODWARD, R. S.

2. ASTRONOMY.

ABBOT, C. G.
BARNARD, E. E.
CAMPBELL, W. W.
COMSTOCK, G. C.
(*Acting Chairman*)
ELKIN, W. L.
FROST, E. B.
HALE, G. E.
LEUSCHNER, A. O.
MOULTON, F. R.
PICKERING, E. C.
WOODWARD, R. S.

3. PHYSICS AND ENGINEERING.

ABBE, CLEVELAND
ABBOT, H. L.
AMES, J. S.
BARUS, CARL
BELL, A. G.
BUMSTEAD, H. A.
CREW, HENRY
HALL, E. H.
HASTINGS, C. S.
HAYFORD, J. F.
MENDENHALL, T. C.
MERRITT, ERNEST
MICHELSON, A. A.
MILLIKAN, R. A.
MORLEY, E. W.
NICHOLS, E. F.
NICHOLS, E. L.
PICKERING, E. C.
PUPIN, M. I.
ROSA, E. B.
THOMSON, ELIHU
TROWBRIDGE, JOHN
WEBSTER, A. G.
WOOD, R. W.
WOODWARD, R. S.
(*Acting Chairman*)

4. CHEMISTRY.

Boltwood, B. B.
Chandler, C. F.
Chittenden, R. H.
Clarke, F. W.
Crafts, J. M.
Franklin, E. C.
Gomberg, Moses
Gooch, F. A.
Hilgard, E. W.[1]
Hillebrand, W. F.
Jackson, C. L.
Lewis, G. N.
Michael, Arthur
Morley, E. W.
Morse, H. N.
Noyes, A. A.
(*Acting Chairman*)
Noyes, W. A.
Osborne, T. B.
Remsen, Ira
Richards, T. W.
Smith, Alexander
Smith, Edgar F.
Stieglitz, J. O.
Wells, H. L.

5. GEOLOGY AND PALEONTOLOGY.

Becker, G. F.
Branner, J. C.
Chamberlin, T. C.
Clark, W. B.
Clarke, J. M.
Cross, Whitman
Dall, W. H.
Dana, E. S.
Davis, W. M.
Day, A. L.
Gilbert, G. K.
Hague, Arnold
(*Acting Chairman*)
Iddings, J. P.
Kemp, J. F.
Lindgren, Waldemar
Osborn, H. F.
Pirsson, L. V.
Pumpelly, Raphael
Ransome, F. L.
Reid, H. F.
Schuchert, Charles
Scott, W. B.
Van Hise, C. R.
Walcott, C. D.
White, David
Williston, S. W.

6. BOTANY.

Britton, N. L.
Campbell, D. H.
Coulter, J. M.
(*Chairman, 1915–1918*)
Farlow, W. G.
Goodale, G. L.
Harper, R. A.
Sargent, C. S.
Smith, Erwin F.
Thaxter, Roland
Trelease, William

7. ZOOLOGY AND ANIMAL MORPHOLOGY.

Allen, J. A.
Castle, W. E.
Conklin, E. G.
(*Acting Chairman*)
Dall, W. H.
Davenport, C. B.
Donaldson, H. H.
Harrison, R. G.
Jennings, H. S.
Lillie, F. R.
Mall, F. P.
Mark, E. L.
Merriam, C. H.
Morgan, T. H.
Morse, E. S.
Osborn, H. F.
Parker, G. H.
Verrill, A. E.
Walcott, C. D.
Wheeler, W. M.
Wilson, Edmund B.

8. PHYSIOLOGY AND PATHOLOGY.

Abel, J. J.
Benedict, F. G.
Cannon, W. B.
Chittenden, R. H.
(*Acting Chairman*)
Councilman, W. T.
Flexner, Simon
Howell, W. H.
Loeb, Jacques
Lusk, Graham
Mall, F. P.
Meltzer, S. J.
Mendel, L. B.
Prudden, T. M.
Smith, Theobald
Vaughan, V. C.
Welch, W. H.
Wood, H. C.

9. ANTHROPOLOGY AND PSYCHOLOGY.

Boas, Franz
Cattell, J. McK.
Dewey, John
Fewkes, J. W.
Hall, G. S.
Holmes, W. H.
(*Acting Chairman*)
Merriam, C. H.
Morse, E. S.
Royce, Josiah

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[1] Died Jan. 8, 1916.

STANDING COMMITTEES.

ON WEIGHTS, MEASURES, AND COINAGE.

MENDENHALL, T. C. (*Chairman*) MICHELSON, A. A. MORLEY, E. W.
WEBSTER, A. G. WOODWARD, R. S.

ON SOLAR RESEARCH.

HALE, G. E. (*Chairman*) CAMPBELL, W. W. MICHELSON, A. A.
NICHOLS, E. L. PICKERING, E. C.

ON PUBLICATION.

The PRESIDENT. The HOME SECRETARY. WALCOTT, C. D.

EDITORIAL BOARD OF THE PROCEEDINGS.

NOYES, A. A. (*Chairman*) WILSON, EDWIN B. (*Managing Editor*)
DAY, A. L. (*Home Secretary*) HALE, G. E. (*Foreign Secretary*)

ABEL, J. J., 1918.
CANNON, W. B., 1916.
CATTELL, J. McK., 1916.
CLARKE, J. M., 1918.
CONKLIN, E. G., 1917.
COULTER, J. M., 1916.
DAVENPORT, C. B., 1917.
FLEXNER, SIMON, 1916.
FROST, E. B., 1917.
HARRISON, R. G., 1916.
HOLMES, W. H., 1917.
IDDINGS, J. P., 1918.
MILLIKAN, R. A., 1918.
MOORE, E. H., 1917.
SMITH, ALEXANDER, 1918.

ON COLLECTION OF HISTORICAL PORTRAITS, MANUSCRIPTS, INSTRUMENTS, ETC.

WALCOTT, C. D. (*Chairman*) CLARKE, F. W. HAGUE, ARNOLD
HALE, G. E. MELTZER, S. J. PUPIN, M. I.

ON PROGRAM.

BOLTWOOD, B. B. (*Chairman*), 1918. CATTELL, J. McK., 1916.
FROST, E. B., 1917.

FINANCE COMMITTEE.

CROSS, WHITMAN (*Chairman*) HAGUE, ARNOLD WALCOTT, C. D.

TRUST FUNDS.

THE BACHE FUND.

[$56,000.]

Researches in physical and natural science.

FROST, E. B. (*Chairman*) HARRISON, R. G. WEBSTER, A. G.

THE WATSON FUND.

[$25,000.]

Watson Medal and the promotion of astronomical research.

PICKERING, E. C. (*Chairman*) ELKIN, W. L. FROST, E. B.

THE HENRY DRAPER FUND.

[$10,000.]

Draper Medal and investigations in astronomical physics.

HALE, G. E. (*Chairman*), 1918. AMES, J. S., 1920. CAMPBELL, W. W., 1919.
MICHELSON, A. A., 1917. TROWBRIDGE, JOHN, 1916.

THE J. LAWRENCE SMITH FUND.

[$10,000.]

J. Lawrence Smith Medal and investigations of meteoric bodies.

Morley, E. W. (*Chairman*), 1919. Dana, E. S., 1918. Hague, Arnold, 1917.
Pickering, E. C., 1920. Remsen, Ira, 1916.

THE BARNARD MEDAL.[1]

Meritorious service to science.

Woodward, R. S. (*Chairman*) Campbell, W. W. Nichols, E. F.
Noyes, A. A. Richards, T. W.

THE BENJAMIN APTHORP GOULD FUND.

[$20,000.]

Researches in astronomy.

Moulton, F. R. (*Chairman*) Barnard, E. E. Woodward, R. S.

THE WOLCOTT GIBBS FUND.

[$5,500.]

Chemical research.

Jackson, C. L. (*Chairman*) Richards. T. W. Smith, Edgar F.

THE COMSTOCK FUND.

[$11,337.50.]

Researches in electricity, magnetism, and radiant energy.

Nichols, E. L. (*Chairman*), 1918. Crew, Henry, 1916. Noyes, A. A., 1919.
Thomson, Elihu, 1920. Webster, A. G., 1917.

THE MARSH FUND.

[$10,127.65.]

Original research in the natural sciences.

THE AGASSIZ FUND.

[$50,000.]

General uses of the Academy.

THE MURRAY FUND.

[$6,000.]

Agassiz Medal and contributions to oceanography.

Hague, Arnold (*Chairman*), 1916. Dall, W. H., 1918. Parker, G. H., 1917.

THE MARCELLUS HARTLEY FUND.

[$1,200.]

Medal for eminence in the application of science to the public welfare.

Becker, G. F. (*Chairman*)

Hillebrand, W. F. Pupin, M. I. Webster, A. G.
Osborn, H. F. Smith, Theobald Welch, W. H.

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[1] Every five years the committee recommends the person whom they consider most deserving of the medal, and upon the approval of the Academy the name of the nominee is forwarded to the trustees of Columbia University, who administer the Barnard Medal Fund.

THE JOSEPH HENRY FUND.

To assist meritorious investigators, especially in the direction of original research.

The sum of $40,000 was contributed by Fairman Rogers, Joseph Patterson, George W. Childs, and others, as an expression of their respect and esteem for Prof. Joseph Henry. This amount was deposited with the Pennsylvania Company for the Insurance of Lives and Granting Annuities in Trust, with authorization to collect the income thereon and to pay over the same to Prof. Joseph Henry during his natural life, and after his death to his wife and daughters, and after the death of the last survivor to "deliver the said fund and the securities in which it shall then be invested to the National Academy of Sciences, to be thenceforward forever held in trust under the name and title of the 'Joseph Henry Fund.'"

MEMBERS OF THE NATIONAL ACADEMY OF SCIENCES, DECEMBER 31, 1915.

		Date of election.
Abbe, Cleveland	*U. S. Weather Bureau, Washington, D. C.*	1879
Abbot, Charles Greeley	*Smithsonian Institution, Washington, D. C.*	1915
Abbot, Henry L., U. S. A.	*23 Berkeley St., Cambridge, Mass.*	1872
Abel, John Jacob	*Johns Hopkins University, Baltimore, Md.*	1912
Allen, J. Asaph	*American Museum of Natural History, N. Y. City.*	1876
Ames, Joseph S.	*Johns Hopkins University, Baltimore, Md.*	1909
Barnard, E. E.	*Yerkes Observatory, Williams Bay, Wis.*	1911
Barus, Carl	*Brown University, Providence, R. I.*	1892
Becker, George F.	*U. S. Geological Survey, Washington, D. C.*	1901
Bell, A. Graham	*1331 Connecticut Ave., Washington, D. C.*	1883
Benedict, Francis Gano	*Nutrition Laboratory, Boston, Mass.*	1914
Boas, Franz	*Columbia University, New York City.*	1900
Bôcher, Maxime	*Harvard University, Cambridge, Mass.*	1909
Boltwood, B. B.	*Yale University, New Haven, Conn.*	1911
Bolza, Oskar	*Reichsgrafenstr. 10, Freiburg, Germany.*	1909
Branner, John C.	*Stanford University, California.*	1905
Britton, Nathaniel Lord	*New York Botanical Gardens, N. Y. City.*	1914
Bumstead, Henry Andrews	*Yale University, New Haven, Conn.*	1913
Campbell, D. H.	*Stanford University, California.*	1910
Campbell, William W.	*Lick Observatory, Mount Hamilton, California.*	1902
Cannon, Walter Bradford	*Harvard University, Cambridge, Mass.*	1914
Castle, William Ernest	*186 Payson Road, Belmont, Mass.*	1915
Cattell, James McK.	*Garrison, N. Y.*	1901
Chamberlin, Thomas C.	*University of Chicago, Chicago, Ill.*	1903
Chandler, Charles F.	*Columbia University, New York City.*	1874
Chittenden, Russell H.	*Sheffield Scientific School, New Haven, Conn.*	1890
Clark, W. B.	*Johns Hopkins University, Baltimore, Md.*	1908
Clarke, F. W.	*U. S. Geological Survey, Washington, D. C.*	1909
Clarke, J. M.	*State Hall, Albany, N. Y.*	1909
Comstock, George C.	*Washburn Observatory, Madison, Wis.*	1899
Conklin, E. G.	*Princeton, N. J.*	1908
Coulter, J. M.	*University of Chicago, Chicago, Ill.*	1909
Councilman, William T.	*Harvard Medical School, Boston, Mass.*	1904
Crafts, James M.	*19 Commonwealth Ave., Boston, Mass.*	1872
Crew, Henry	*Northwestern University, Evanston, Ill.*	1909
Cross, Whitman	*U. S. Geological Survey, Washington, D. C.*	1908
Dall, William H.	*Smithsonian Institution, Washington, D. C.*	1897
Dana, Edward S.	*Yale University, New Haven, Conn.*	1884
Davenport, Charles B.	*Cold Spring Harbor, N. Y.*	1912
Davis, William Morris	*31 Hawthorn St., Cambridge, Mass.*	1904
Day, Arthur L.	*Geophysical Laboratory, Washington, D. C.*	1911
Dewey, John	*Columbia University, New York City.*	1910
Dickson, Leonard E.	*University of Chicago, Chicago, Ill.*	1913
Donaldson, Henry Herbert	*Wistar Institute of Anatomy, Phila., Pa.*	1914

		Date of election.
Elkin, William L	*Yale University Observatory, New Haven, Conn.*	1895
Farlow, W. G	*Harvard University, Cambridge, Mass.*	1879
Fewkes, Jesse Walter	*Bureau of American Ethnology, Wash., D. C.*	1914
Flexner, Simon	*Rockefeller Institute, New York City.*	1908
Franklin, Edward Curtis	*Stanford University, California.*	1914
Frost, Edwin B	*Yerkes Observatory, Williams Bay, Wis.*	1908
Gilbert, Grove K	*U. S. Geological Survey, Washington, D. C.*	1883
Gomberg, Moses	*University of Michigan, Ann Arbor, Mich.*	1914
Gooch, Frank A	*Yale University, New Haven, Conn.*	1897
Goodale, George L	*Harvard University, Cambridge, Mass.*	1890
Hague, Arnold	*U. S. Geological Survey, Washington, D. C.*	1885
Hale, George E	*Solar Observatory Office, Pasadena, Cal.*	1902
Hall, Edwin H	*Harvard University, Cambridge, Mass.*	1911
Hall, Granville Stanley	*Clark University, Worcester, Mass.*	1915
Harper, R. A	*Columbia University, New York City.*	1911
Harrison, Ross G	*Yale University, New Haven, Conn.*	1913
Hastings, Charles S	*Yale University, New Haven, Conn.*	1889
Hayford, John F	*Northwestern University, Evanston, Ill.*	1911
Hilgard, Eugene W.[1]	*University of California, Berkeley, Cal.*	1872
Hillebrand, William F	*Bureau of Standards, Washington, D. C.*	1908
Holmes, William H	*U. S. National Museum, Washington, D. C.*	1905
Howell, William H	*Johns Hopkins University, Baltimore, Md.*	1905
Iddings, Joseph P	*U. S. Geological Survey, Washington, D. C.*	1907
Jackson, Charles L	*6 Boylston Hall, Cambridge, Mass.*	1883
Jennings, Herbert Spencer	*Johns Hopkins University, Baltimore, Md.*	1914
Kemp, James F	*Columbia University, New York City.*	1911
Leuschner, Armin O	*University of California, Berkeley, Cal.*	1913
Lewis, Gilbert N	*University of California, Berkeley, Cal.*	1913
Lillie, Frank Rattray	*University of Chicago, Chicago, Ill.*	1915
Lindgren, Waldemar	*Mass. Inst. of Technology, Boston, Mass.*	1909
Loeb, Jacques	*Rockefeller Institute, New York City.*	1910
Lusk, Graham	*Cornell University Medical College, New York City.*	1915
Mall, Franklin P	*Johns Hopkins University, Baltimore, Md.*	1907
Mark, Edward L	*109 Irving St., Cambridge, Mass.*	1903
Meltzer, Samuel James	*Rockefeller Institute, New York City.*	1912
Mendel, Lafayette B	*18 Trumbull St., New Haven, Conn.*	1913
Mendenhall, Thomas C	*329 North Chestnut St., Ravenna, Ohio.*	1887
Merriam, C. Hart	*1919 16th St., Washington, D. C.*	1902
Merritt, Ernest	*Cornell University, Ithaca, N. Y.*	1914
Michael, Arthur	*219 Parker St., Newton Center, Mass.*	1889
Michelson, Albert A	*University of Chicago, Chicago, Ill.*	1888
Millikan, Robert Andrews	*University of Chicago, Chicago, Ill.*	1915
Moore, Eliakim H	*University of Chicago, Chicago, Ill.*	1901
Morgan, T. H	*Columbia University, New York City.*	1909
Morley, Edward W	*West Hartford, Conn.*	1897
Morse, Edward S	*Salem, Mass.*	1876
Morse, Harmon N	*Johns Hopkins University, Baltimore, Md.*	1907
Moulton, F. R	*University of Chicago, Chicago, Ill.*	1910
Nichols, Edward L	*Cornell University, Ithaca, N. Y.*	1901
Nichols, Ernest F	*Dartmouth College, Hanover, N. H.*	1908

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[1] Died Jan. 8, 1916.

		Date of election.
Noyes, Arthur A	*Massachusetts Institute of Technology, Boston, Mass.*	1905
Noyes, William A	*University of Illinois, Urbana, Ill.*	1910
Osborn, H. F	*American Museum of Natural History, New York City.*	1900
Osborne, T. B	*Agricultural Experiment Station, New Haven, Conn.*	1910
Osgood, William Fogg	*Harvard University, Cambridge, Mass.*	1904
Parker, George H	*16 Berkeley St., Cambridge, Mass.*	1913
Pickering, Edward C	*Harvard College Observatory, Cambridge, Mass.*	1873
Pirsson, Louis V	*41 Trumbull St., New Haven, Conn.*	1913
Prudden, T. Mitchell	*Columbia University, New York City.*	1901
Pumpelly, Raphael	*Gibbs Ave., Newport, R. I.*	1872
Pupin, Michael I	*Columbia University, New York City.*	1905
Ransome, Frederick Leslie	*U. S. Geological Survey, Washington, D. C.*	1914
Reid, H. Fielding	*Johns Hopkins University, Baltimore, Md.*	1912
Remsen, Ira	*Johns Hopkins University, Baltimore, Md.*	1882
Richards, Theodore W	*Wolcott Gibbs Mem. Lab., Cambridge, Mass.*	1899
Rosa, Edward B	*Bureau of Standards, Washington, D. C.*	1913
Royce, Josiah	*Harvard University, Cambridge, Mass.*	1906
Sargent, Charles S	*Arnold Arboretum, Jamaica Plain, Mass.*	1895
Schuchert, Charles	*Yale University, New Haven, Conn.*	1910
Scott, William B	*Princeton University, Princeton, N. J.*	1906
Smith, Alexander	*Columbia University, New York City.*	1915
Smith, Edgar F	*University of Pennsylvania, Philadelphia, Pa.*	1899
Smith, Erwin F	*Bureau of Plant Industry, Washington, D. C.*	1913
Smith, Theobald	*Princeton, N. J.*	1908
Stieglitz, J. O	*University of Chicago, Chicago, Ill.*	1911
Story, William E	*Clark University, Worcester, Mass.*	1908
Thaxter, Roland	*Harvard University, Cambridge, Mass.*	1912
Thomson, Elihu	*Swampscott, Mass.*	1907
Trelease, William	*University of Illinois, Urbana, Ill.*	1902
Trowbridge, John	*Harvard University, Cambridge, Mass.*	1878
Van Hise, C. R	*University of Wisconsin, Madison, Wis.*	1902
Van Vleck, E. B	*University of Wisconsin, Madison, Wis.*	1911
Vaughan, Victor Clarence	*University of Michigan, Ann Arbor, Mich.*	1915
Verrill, A. E	*Yale University, New Haven, Conn.*	1872
Walcott, Charles D	*Smithsonian Institution, Washington, D. C.*	1896
Webster, Arthur G	*Clark University, Worcester, Mass.*	1903
Welch, William H	*807 St. Paul St., Baltimore, Md.*	1895
Wells, Horace L	*Yale University, New Haven, Conn.*	1903
Wheeler, William M	*Harvard University, Cambridge, Mass.*	1912
White, David	*U. S. Geological Survey, Washington, D. C.*	1912
White, Henry Seely	*Vassar College, Poughkeepsie, N. Y.*	1915
Williston, Samuel Wendell	*University of Chicago, Chicago, Ill.*	1915
Wilson, Edmund B	*Columbia University, New York City.*	1899
Wood, Horatio C	*4107 Chester Ave., Philadelphia, Pa.*	1879
Wood, Robert W	*Johns Hopkins University, Baltimore, Md.*	1912
Woodward, Robert S	*Carnegie Institution, Washington, D. C.*	1896

HONORARY MEMBER.

Smith, Sidney I	*Yale University, New Haven, Conn.*	1884

FOREIGN ASSOCIATES.

		Date of election.
Arrhenius, S. A	*Nobelinstitut, Stockholm.*	1908
Backlund, Oskar	*Astronomical Observatory, Poulkova.*	1903
Baeyer, Adolph Ritter von	*Universität, Munich.*	1898
Barrois, Charles	*Université, Lille.*	1908
Brøgger, W. C	*Universitet, Christiania.*	1903
Crookes, Sir William	*London.*	1913
Darboux, Gaston	*Academy of Sciences, Paris.*	1913
Deslandres, Henri	*Astrophysical Observatory, Meudon.*	1913
Dewar, Sir James	*University, Cambridge.*	1907
Fischer, Emil	*Chemisches Institut der Universität, Berlin.*	1904
Forsyth, A. R	*Trinity College, Cambridge.*	1907
Geikie, Sir Archibald	*Haslemere, Surrey.*	1901
Groth, Paul von	*Universität, Munich.*	1905
Heim, Albert	*Zürich.*	1913
Hilbert, David	*Universität, Göttingen.*	1907
Kapteyn, John C	*Rijks Universiteit, Groningen.*	1907
Klein, Felix	*Universität, Göttingen.*	1898
Kössel, Albrecht	*Heidelberg.*	1913
Kustner, Karl Friedrich	*Bonn.*	1913
Lankester, E. Ray	*South Kensington, London.*	1903
Larmor, Sir Joseph	*St. Johns College, Cambridge.*	1908
Lorentz, Hendrik Anton	*Rijks Universiteit, Leiden.*	1906
Ostwald, Wilhelm	*Grossbothen, bei Leipzig.*	1906
Pavlov, Ivan Petrovitch	*Imperial Institute for Experimental Medicine, Petrograd.*	1908
Penck, Albrecht	*Universität, Berlin.*	1909
Pfeffer, Wilhelm	*Botanische Institut der Universität, Leipzig.*	1903
Picard, Charles Émile	*Université, Paris.*	1903
Ramsay, Sir William	*University College, London.*	1904
Rayleigh, Lord	*University, Cambridge.*	1898
Retzius, Gustav	*Högskolan, Stockholm.*	1909
Rutherford, Ernest	*University, Manchester.*	1911
Schuster, Arthur	*Secretary of the Royal Society, London.*	1913
Seeliger, Hugo Ritter von	*Universität, Munich.*	1908
Thomson, Sir Joseph	*University, Cambridge.*	1903
Volterra, Vito	*Università, Rome.*	1911
Vries, Hugo de	*Universiteit, Amsterdam.*	1904
Waals, Johannes D. van der	*Amsterdam.*	1913
Waldeyer, Wilhelm	*Universität, Berlin.*	1909
Wolf, Max F. J. C	*Heidelberg.*	1913
Wundt, Wilhelm	*Universität, Leipzig.*	1909

DECEASED MEMBERS.

	Date of election.	Date of death.
Agassiz, Alexander	1866	Mar. 27, 1910
Agassiz, Louis	(1)	Dec. 14, 1873
Alexander, J. H	(1)	Mar. 2, 1867
Alexander, Stephen	(1)	June 25, 1883
Bache, Alexander Dallas	(1)	Feb. 14, 1867
Baird, Spencer F	1864	Aug. 19, 1887
Barker, George F	1876 [2]	May 24, 1910
Barnard, F. A. P	(1) (2)	Apr. 27, 1889
Barnard, J. G	(1)	May 14, 1882
Bartlett, W. H. C	(1)	Feb. 11, 1893
Beecher, Charles Emerson	1899	Feb. 14, 1904
Billings, John S	1883 [2]	Mar. 11, 1913
Boss, Lewis	1889 [2]	Oct. 5, 1912
Bowditch, Henry P	1887 [2]	Mar. 13, 1911
Brewer, William H	1880 [2]	Nov. 2, 1910
Brooks, William Keith	1884	Nov. 12, 1908
Brown-Sequard, Charles E	1868	Apr. 2, 1894
Brush, George Jarvis	1868 [2]	Feb. 6, 1912
Casey, Thomas L	1890	Mar. 25, 1896
Caswell, Alexis	(1)	Jan. 8, 1887
Chandler, Seth Carlo	1888 [2]	Jan. 10, 1914
Chauvenet, William	(1)	Dec. 13, 1870
Clarke, Henry James	1872	July 1, 1873
Coffin, James	1869	Jan. 6, 1873
Coffin, J. H. C	(1)	Jan. 8, 1890
Comstock, Cyrus B	1884	May 29, 1910
Cook, George H	1887	Sept. 22, 1889
Cooke, Josiah P	1872	Sept. 3, 1894
Cope, Edward D	1872 [2]	Apr. 12, 1897
Coues, Elliott	1877	Dec. 25, 1899
Dalton, J. C	1864	Feb. 2, 1889
Dana, James D	(1) (2)	Apr. 14, 1895
Davidson, George	1874 [2]	Dec. 2, 1911
Davis, Charles H	(1)	Feb. 14, 1877
Draper, Henry	1877	Nov. 20, 1882
Draper, John W	1877	Jan. 4, 1882
Dutton, C. E	1884 [2]	Jan. 4, 1912
Eads, James B	1872	Mar. 8, 1887
Emmons, Samuel F	1892	Mar. 28, 1911
Englemann, George	(1)	Feb. 4, 1884
Ferrel, William	1868	Sept. 18, 1891
Fraser, John Fries	(1)	Oct. 12, 1872
Gabb, William M	1876	May 30, 1878
Genth, F. A	1872	Feb. 2, 1893
Gibbs, Josiah Willard	1879	Apr. 28, 1903
Gibbs, Wolcott	(1)	Dec. 9, 1908
Gill, Theodore Nicholas	1873 [2]	Sept. 25, 1914
Gillis, James Melville	(1)	Feb. 9, 1865
Goode, G. Brown	1888	Sept. 6, 1896
Gould, Augustus A	(1)	Sept. 15, 1866
Gould, Benjamin A	(1) (2)	Nov. 27, 1896
Gray, Asa	(1)	Jan. 30, 1888
Guyot, Arnold	(1)	Feb. 8, 1884

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[1] Charter members, March 3, 1863.

[2] Biographical notices have not been presented.

Deceased members—Continued.

	Date of election.	Date of death.
Hadley, James	1864	Aug. 1, 1872
Haldeman, S. S	1876	Sept. 20, 1880
Hall, Asaph	1875	Nov. 22, 1907
Hall, James	(1) (2)	Aug. 8, 1898
Hayden, F. V	1873	Dec. 22, 1887
Henry, Joseph	(1)	May 13, 1878
Hilgard, Julius E	(1)	May 8, 1891
Hill, George William	1874	Apr. 6, 1914
Hill, Henry B	1883	Apr. 6, 1903
Hitchcock, Edward	(1)	Feb. 27, 1864
Holbrook, J. E	1868	Sept. 8, 1871
Holden, Edward Singleton	1885 [2]	Mar. 16, 1914
Hubbard, J. S	(1)	Aug. 16, 1863
Humphreys, A. A	(1)	Nov. 28, 1883
Hunt, T. Sterry	1873 [2]	Feb. 12, 1892
Hyatt, Alpheus	1875	Jan. 16, 1902
Johnson, S. W	1866	July 21, 1909
Keeler, J. E	1900	Aug. 12, 1900
King, Clarence	1876	Dec. 24, 1901
Kirtland, Jared P	1865	Dec. 10, 1877
Lane, J. Homer	1872	May 3, 1880
Langley, Samuel P	1876	Feb. 27, 1906
Lea, Matthew Carey	1892	Mar. 15, 1897
Le Conte, John	1878	Apr. 29, 1891
Le Conte, John L	(1)	Nov. 15, 1883
Le Conte, Joseph	1875	July 6, 1901
Leidy, Joseph	(1)	Apr. 30, 1891
Lesley, J. Peter	(1)	June 3, 1903
Lesquereux, Leo	1864	Oct. 25, 1889
Longstreth, Miers F	(1)	Dec. 27, 1891
Loomis, Elias	1873	Aug. 16, 1889
Lovering, Joseph	1873	Jan. 18, 1892
Lyman, Theodore	1872	Sept. 10, 1897
Mahan, D. H	(1)	Sept. 16, 1871
Marsh, G. P	1866	July 23, 1882
Marsh, O. C	1874 [2]	Mar. 18, 1899
Mayer, Alfred M	1872	July 13, 1897
Mayo-Smith, Richmond	1890 [2]	Nov. 11, 1901
Meek, F. B	1869	Dec. 21, 1877
Meigs, M. C	1865	Jan. 2, 1892
Minot, Charles Sedgwick	1897 [2]	Nov. 19, 1914
Mitchell, Henry	1885 [2]	Dec. 1, 1902
Mitchell, Silas Weir	1865 [2]	Jan. 4, 1914
Morgan, Lewis H	1875	Dec. 14, 1881
Morton, Henry	1874	May 9, 1902
Nef, John Ulric	1904 [2]	Aug. 13, 1915
Newberry, J. S	(1)	Dec. 7, 1892
Newcomb, Simon	1869 [2]	July 11, 1909
Newton, H. A	(1)	Aug. 1, 1896
Newton, John	1876	May 1, 1895
Norton, William A	1873	Sept. 21, 1883
Oliver, James E	1872	Mar. 27, 1895
Packard, A. S	1872 [2]	Feb. 14, 1905
Pierce, Benjamin Osgood	1906 [2]	Jan. 14, 1914

[1] Charter members, March 3, 1863.

[2] Biographical notices have not been presented.

Deceased members—Continued.

	Date of election.	Date of death.
Pierce, Charles Santiago Sanders	1876[2]	Apr. 20, 1914
Penfield, Samuel L	1900	Aug. 13, 1906
Peters, C. H. F	1876[2]	July 18, 1890
Pourtales, L. F	1873	July 19, 1880
Powell, John W	1880	Sept. 23, 1902
Putnam, Frederick W	1885[2]	Aug. 14, 1915
Rodgers, John	(1)	May 5, 1882
Rogers, Fairman	(1)	Aug. 23, 1900
Rogers, Robert E	(1)	Sept. 7, 1884
Rogers, William A	1885	Mar. 1, 1898
Rogers, William B	(1)	May 30, 1882
Rood, Ogden N	1885	Nov. 12, 1902
Rowland, Henry A	1881	Apr. 16, 1901
Rutherfurd, Lewis M	(1)	May 30, 1892
Saxton, Joseph	(1)	Oct. 26, 1873
Schott, Charles A	1872	July 31, 1901
Scudder, Samuel H	1877[2]	May 17, 1911
Sellers, William	1873[2]	Jan. 24, 1905
Silliman, Benj., Sr	(1)	Nov. 24, 1864
Silliman, Benj., Jr	(1)	Jan. 14, 1885
Smith, J. Lawrence	1872	Oct. 12, 1883
Stimpson, William	1868[2]	May 26, 1873
Strong, Theodore	(1)	Feb. 1, 1869
Sullivant, W. S	1873	Apr. 30, 1882
Torrey, John	(1)	Mar. 10, 1873
Totten, J. G	(1)	Apr. 22, 1864
Trowbridge, William P	1872	Aug. 12, 1892
Trumbull, James H	1872	Aug. 5, 1897
Tuckerman, Edward	1868	Mar. 15, 1886
Walker, Francis A	1878	Jan. 5, 1897
Warren, G. K	1876	Aug. 8, 1882
Watson, James C	1868	Nov. 23, 1880
Watson, Sereno	1889	Mar. 9, 1892
Wheeler, Henry Lord	1909[2]	Oct. 30, 1914
White, Charles A	1889	June 29, 1910
Whitman, C. O	1895	Dec. 6, 1910
Winlock, Joseph	(1)	June 11, 1875
Woodward, J. J	1873	Aug. 17, 1884
Worthen, A. H	1872	May 6, 1888
Wright, Arthur Williams	1881[2]	Dec. 19, 1915
Wyman, Jeffries	(1)	Sept. 4, 1874
Young, Charles A	1872	Jan. 3, 1908

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[1] Charter members, March 3, 1863.

[2] Biographical notices have not been presented.

DECEASED FOREIGN ASSOCIATES.

Adams, J. C.
Airy, Sir George B.
Argelander, F. W. A.
Auwers, G. F. J. Arthur
Baer, Karl Ernest von
Barrande, Joachim
Beaumont, L. Élie de
Becquerel, Henri
Berthelot, M. P. E.
Bertrand, J. L. F.
Boltzmann, Ludwig
Bornet, Edouard
Boussingault, J. B. J. D.
Boveri, Theodor
Braun, Alexander
Brewster, Sir David
Bunsen, Robert W.
Burmeister, C. H. C.
Candolle, Alphonse de
Cayley, Arthur
Chasles, Michel
Chevreul, M. E.
Clausius, Rudolph
Cornu, Alfred
Darwin, Sir George Howard
Dove, H. W.
Dumas, J. B.
Ehrlich, Paul
Farraday, Michael
Gegenbaur, Karl
Glydén, Hugo
Gill, Sir David
Hamilton, Sir William Rowan
Helmholtz, Baron H. von
Hoff, J. H. van't
Hofmann, A. W.
Hooker, Sir Joseph D.
Huggins, Sir William
Huxley, T. H.
Ibañez, Carlos
Janssen, J.
Joule, James P.
Kekulé, August
Kelvin, Lord
Kirchoff, G. R.
Koch, Robert
Kohlrausch, Friedrich
Kölliker, Albert von
Kronecker, Hugo
Lacaze-Duthiers, Henri de
Leuckart, Rudolph
Lie, Sophus
Liebig, Justus von
Lister, Lord
Loewy, Maurice
Ludwig, K. F. W.
Marey, E. J.
Mendeléeff, D. I.
Milne-Edwards, Henri
Moissan, Henri
Murchison, Sir Roderick I.
Murray, Sir John
Oppolzer, Theodore von
Owen, Sir Richard
Pasteur, Louis
Peters, C. A. F.
Plana, G. A. A.
Poincaré, Jules Henri
Rammelsberg, C. F.
Regnault, Victor
Reymond, Emil Du Bois
Richthofen, F. von
Rosenbusch, Karl Harry Ferdinand
Sachs, Julius von
Schiaparelli, Giovanni
Stas, Jean Servais
Stokes, Sir George G.
Strasburger, Edouard
Struve, Otto von
Suess, Eduard
Sylvester, J. J.
Tisserand, F. F.
Virchow, Rudolph von
Vogel, H. C.
Weierstrass, Karl
Weismann, August
Wöhler, Friedrich
Würtz, Adolph
Zirkel, Ferdinand
Zittel, K. A. R. von

64th Congress 1st Session } SENATE { Document No. 307

Mount Kearsarge and Mount Pequawket New Hampshire

HISTORICAL NOTES
RELATING TO THE CONFLICTING NAMES OF MOUNT KEARSARGE AND MOUNT PEQUAWKET NEW HAMPSHIRE

SUBMITTED TO THE UNITED STATES GEOGRAPHIC BOARD AT THE SUGGESTION OF SENATOR J. H. GALLINGER, TOGETHER WITH THE DECISION OF THE BOARD IN REGARD THERETO

Compiled by

DAVID M. HILDRETH

Topographer, Post Office Department, Member United States Geographic Board

PRESENTED BY MR. GALLINGER

February 3, 1916.—Ordered to be printed

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

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The UNITED STATES

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MOUNT KEARSARGE AND MOUNT PEQUAWKET, NEW HAMPSHIRE.

Kearsarge: Name of a mountain in Merrimack County, New Hampshire.

This mountain is first shown and named on Gardner's map of a survey of the Merrimack River, ordered by the General Court of Massachusetts in 1638, and made in the spring of 1639 by Nathaniel Woodward. It is called "Carasaga." In this surveying party were two Natick Indians and Carasaga is thought to mean in the dialect of that tribe, "Notchpointed Mountain of Pines." This map is in the archives of the Essex (Mass.) County Commissioners. ("As to Kearsarge," p. 10.)

Mount Kearsarge is shown on a map of a survey made in 1652 for the commissioners appointed by Gov. Endicott to determine the head or source of the Merrimack River, for the purpose of locating the northern boundary of the Massachusetts Colony. It is also called "Carasaga." (Harriman's History of Warner, N. H., p. 35.)

In a journal of a scouting party commanded by Samuel Willard, of Lancaster, Mass., in July, 1725, this mountain was seen and called "Cu-sa-gee." The Carroll County mountain was also seen and called "Pigwacket." (Mass. Archives 38 A—Appapachia, vol. 1, p. 154.)

A plan of Kearsarge Gore, now a part of the town of Warner, New Hampshire, made by Col. Henry Gerish, about 1751, bears the following title: "A plan of Kaysarge Gore, near Kysarge." (History of Warner, p. 36.)

On a map of a survey made in 1753 of the town of Andover by W. B. Clough, the mountain is shown and named "Ciersarge—a mountain large." A note on the margin says "Cier-Sarge: a mountain large. By the Indians Cowissewaschook." This map is now on file in the office of the Secretary of State of New Hampshire. (Proceedings New Hampshire Historical Society, vol. 1, p. 149.)

Thomas Jeffrey's map, published in England in 1755 from surveys made in 1750 by Mitchell and Hazzen, shows the mountain and spells the name "Kyarsarge."

On a map of New Hampshire by Joseph Blanchard and Samuel Langdon (afterwards president of Harvard College), published in 1761, this mountain is shown and called "Kya-sa-ge." No name is given to the Carroll County mountain.

On a map made by Samuel Holland, the King's surveyor of New Hampshire, 1773–74, and published at London in 1784, Kearsarge is correctly shown and called "Kyar Sarga—by the Indians, Cowissewaschook." The Carroll County mountain is shown but no name given to it.

In June, 1793, the Legislature of New Hampshire passed an act "To set off sundry lots of land from a place called "Kear Sarge," which was located on the side of Mount Kearsarge and between the towns of Salisbury and Sutton. ("As to Kearsarge," and History of Warner, p. 11.)

The map accompanying the report of the first census of New Hampshire, 1790, printed by John Reid in 1796, shows this mountain as "Kyarsarga Mountain." No other mountain with a similar name is shown on this map. This report, "Heads of Families," is printed again by the Census Bureau in 1907. This report also gives a list of "Heads of Families" in the Town of Kearsarge Gore.

Map accompanying Belknap's History of New Hampshire, published in 1791, gives "Kyasarge Mountain."

"Kyarsarge" is given on the Bohn or Stotzman map printed 1796 at Hamberg, Germany.

"Kyarsarge" on Samuel Lewis's map published in 1813. No name given to the Carroll County mountain.

"Kearsarge" on Carrigain's map of New Hampshire printed in 1816, which was authorized by the Legislature.

The Committee on Towns and Parishes of New Hampshire Legislature of 1876 made the following report:

"From evidence submitted it appears there are two mountains in New Hampshire now known by the name of "Kearsarge"—one in Merrimack and the other in Carroll County—and the orthography of the word, like that of others derived from the Indians, has undergone various changes.

"On the elaborate English map by Blanchard and Langdon, from surveys made in 1761 and published in 1768, the name Kyasage is given to the mountain in Merrimack County. The Holland map in 1784 gives the name Kyar Sarga to the mountain in Merrimack County, and no name to that in Carroll County; and your committee are unanimously of the opinion that the mountain in Merrimack County is justly entitled to the name of 'Kearsarge.'"

This mountain has always been shown on all maps, surveys, in all histories and registers of New Hampshire in the same locality, bearing practically the same name, the variations of spelling being no more than is usually found with Indian names.

PEQUAWKET: Mountain in Carroll County, New Hampshire.

This mountain is first mentioned and located in the Journals of two scouting expeditions into New Hampshire by Capt. Samuel Willard in 1725. (Mass. Archives 38A—Appalachia, vol. 1, p. 154.)

The earliest map that shows it by name is the small map accompanying Belknap's History of New Hampshire, published in 1791. The name is spelled "Kyarsarge."

Belknap wrote a Journal of a tour of the White Mountains, made in July, 1784, which was accompanied by a sketch map on which this mountain is named "Kyarsarge," but this was not published until 1876 by the Massachusetts Historical Society.

Neither the Reid map of 1796, accompanying the Census of 1790, or the Lewis map of 1813 gives any name to this mountain.

The Carrigain map of 1816, which was prepared by direction of the Legislature of New Hampshire, from the original charters and plans of the towns of the State (Carrigain was sometime Secretary of the State) gives the following as the name of this mountain: "Pigwacket Mt., formerly Kiarsarge."

The Edward Ruggles map of 1817 gives only "Pigwacket Mt."

Finley's Atlas, published at Philadelphia in 1824 and 1831, gives no name to this mountain.

"Pigwacket Mt." on Goodno's map of 1833.

"The History of the White Mountains" by Rev. B. G. Willey, a native of the region, published in 1856, calls the mountain "Pequawket." (P. 205.)

Star King in his "White Hills," published in 1859, page 150, states: "And nearer swells the symmetrical Kiarsarge, the queenly mountain of New Hampshire, which, when the Indian titles were expunged from the grand range, should have been christened 'Martha Washington.' The true Indian name of this charming pyramid is 'Pequawket.'"

"New Hampshire as it Is," by Charlton and Ticknor, 1855, states "Pequawket Mountain is situated in Bartlett."

"Mt. Pequawket (Kiarsarge)" is the manner that Prof. C. H. Hitchcock shows the mountain on the map that he had prepared largely from original sources to accompany his "Geology of New Hampshire," published in 1876.

The large raised model map of the State in the State House at Concord, prepared by the authority of the Legislature, bearing the date of 1877, by Prof. Hitchcock, gives "Pequawket" as the name of this mountain.

"Mt. Pequawket," Eastman's White Mountain Guide, 1872.

"Mt. Pequawket or Kiarsarge," Walling's Atlas, 1877.

"Mt. Pigwacket," Colton's Atlas, 1871 and 1878.

"Mt. Kiarsarge," Colton's Atlas, 1883.

The History of Carroll County by G. D. Merrill, published in 1889, page 108, gives "Mt. Kiarsarge (Kearsarge) or Pequawket" at the head of the paragraph describing this mountain.

"Mt. Kearsarge North," Coast Survey, 1878.

"Mt. Kearsarge North," U. S. Geological Survey, 1896.

"Mt. Kearsarge or Pequawket" is given on a map of Carroll County, published by George H. Walker in 1902.

"Mt. Kiarsarge North," The Century Atlas, 1902.

"Mt. Pequawket," Cram's Atlas, 1905.

APPALACHIAN CLUB.

A committee appointed by the Appalachian Club, with Prof. Fay as chairman, made a report concerning the true name of the northern Kearsarge on April 11, 1877, from which the following may be quoted: "Were the question one of simple priority, it would seem to present but little difficulty in its solution. It is incontestable that the Merrimack County mountain (U. I.) was known by the name of Carasaga Mountain as early as the middle of the seventeenth century, as shown from an ancient map of that period in the Essex Co. (Mass.) Archives. It would be an ungracious task to attempt to prove that the modern name Kearsarge is not a direct descendant from this name." In conclusion, "The committee then find that there are two mountains in New Hampshire which at present bear the same name, Kearsarge; that so far as they are able to judge, the name is equally the original name of both, and handed down by unbroken and reliable tradition; that another name, Pigwacket, with several variations of orthography—an appellation which, as it appears, was formerly applied to a group of hills some miles to the southeast—has also been quite frequently applied to the Carroll County mountain since 1816, sometimes alone, but often joined with the other title, and more especially upon maps that are recognized as good authorities, and in gazetteers, and in virtue of this must be considered a name for the same, although the other seems to have over it the advantages of priority and especially of general local usage."

From the discussion that followed the above report the following may be quoted (Appal. vol. 1, p. 202):

"Mr. Emery then presented evidence to show that the name Kearsarge, or its equivalent, was applied to the Merrimack County mountain much earlier than to that in Carroll County. Also that the name Pequawket was applied to the latter earlier than the name Kearsarge. From which he argued that the name Kearsarge belonged of right to the Merrimack County mountain, and that the true name of the Carroll County mountain was Pequawket.

"Prof. Hitchcock offered evidence to show that the Carroll County mountain had been popularly known as Pequawket, and that the name Kearsarge had been given it by settlers coming from the vicinity of the Merrimack County mountain. He therefore favored the name Pequawket for the former as a means of distinguishing it from the latter, especially for scientific purposes.

"Mr. Worcester said that, until within a few years, the name of the Carroll County mountain had been Kiarsarge, not Kearsarge. The village at its foot, which was named from it, was Kiarsarge Village, and all the old guideboards had that spelling, which was also used by the hotel on the summit, and until recently by the hotel of the same name in North Conway. He thought that at least that distinction should be retained between this mountain and that in Merrimack County. He proposed as a compromise, and as perhaps aiding in finally changing the name of the former to Pequawket, that it be called 'the Pequawket Kearsarge.'"

NEW HAMPSHIRE HISTORICAL SOCIETY.

The New Hampshire Historical Society appointed a committee consisting of Dr. N. Bouton, the historian of the State; J. M. Shirley, and G. V. Fox, at its annual meeting June 11, 1877, on the name Kearsarge, to report such facts as they may be able to collect at a future meeting of the society. After two years' labor of research a carefully prepared report was submitted to the society at its annual meeting June 11, 1879, the conclusion being that the name Kearsarge belongs of right exclusively to the mountain in Merrimack County. The committee recommended the following preamble and resolution (Proceedings vol. 1, p. 181):

"Whereas of two mountains in the State of New Hampshire called by the name of Kearsarge or Kiarsarge, the question has arisen to which the name more properly belongs; and whereas the judgment of the New Hampshire Historical Society has been requested on the subject: Therefore

"*Resolved*, (1) That, after a full and impartial examination of historical evidence, this society finds that the mountain called by said name in Merrimack County has been known and called by that name, alone and invariably—with variations in spelling—more than 150 years, or since September, 1725; that the mountain so called in Carroll County was first known or designated as 'Pequawkett', and was never known or called Kearsarge until subsequent to 1780, or after the settlement of that section of country by people chiefly from Merrimack County, 1765–1775.

"*Resolved*, (2) That to avoid confusion in geographical names within the State, we regard it as desirable that the said two mountains should be definitely distinguished by some proper authority; and inasmuch as the prior name of the one is historically fixed, both on maps and in written records, and that of the other is more recent and belongs to a portion of the State known in all our early annals as the 'Pequawkett'—famous also in historic events—therefore, in the opinion of this society, it would be highly appropriate and honorable that the name by which it was first designated, and by which it was called on the maps published by authority of the State in 1816, by Philip Carrigain, Esq., should be retained, viz., PEQUAWKETT Mountain."

Final action on this report was not apparently taken until the annual meeting of 1885 when it was voted, "That the matter pertaining to the name Kearsarge be left as reported by the committee at the annual meeting in 1879." And the said report as published was adopted. (Letter of Supt. of N. H. Hist. Society, March 29, 1915.)

At the meeting of 1879 a minority report was presented by Mr. G. V. Fox in opposition to the majority report, but this report so far as the records show, received no consideration from the society and was not published. (Idem.)

The Secretary read a letter from Dr. Bouton of the New Hampshire Historical Society testifying that, so far as he knew, the members of that society were "Unanimously of the opinion that the true and only 'Kearsarge' was that in Merrimack Co." He remarked that upon all the old maps the name in question, when applied to either mountain, was spelled "Kiarsarge," or in some way necessitating the pronunciation of the first syllable. Also that, on several of the oldest of those maps, the name was applied to the Merrimack County mountain, while that in Carroll County was left nameless.

Belknap states in his "Tour of the White Mountains," 1784, that he copied the sketch map from one belonging to Col. Whipple, who was one of the party. Col. Whipple then lived in what is now the town of Jefferson, but formerly lived in the southern part of the State. He was associated with John Moffat, who was a land owner in about 30 towns in New Hampshire, and owned three of the 100-acre lots in Kearsarge Gore. It is believed that Whipple was familiar with these lands as well as the locality of Kearsarge Mountain. In this manner he might have applied its name on his sketch of the Carroll County mountain. This would explain how Belknap's map of New Hampshire came to have two mountains bearing the same name of Kyarsarge. (N. H. Hist. Society, vol. 1, p. 160.)

NEW HAMPSHIRE HISTORICAL SOCIETY.

CONCORD, N. H., *March 29, 1915.*

Mr. D. M. HILDRETH,
Washington, D. C.

DEAR SIR: I have your communication of the 27th in regard to the action of this society in the matter of the name of Kearsarge Mountain.

Referring to the proceedings of this society, volume 1, you will notice that the report on this subject, submitted by Mr. John M. Shirley, and published on pages 136–181, is the report of the majority of the committee appointed to investigate this subject. The resolutions printed on page 181 form a part of this report, and their adoption is recommended by the committee.

Final action on this report was not apparently taken until the meeting of 1885, when it was voted "that the matter pertaining to the name Kearsarge be left as reported by the committee at the annual meeting in 1879," and the said report as published was adopted. (See Proceedings, vol. 1, p. 371.)

At the meeting of 1879 a minority report was apparently presented by Mr. G. V. Fox in opposition to the majority report by Mr. Shirley, but this minority report, so far as the records show, received no consideration from this society and was not published.

I should say without hesitation that the society by voting in 1885 to adopt Mr. Shirley's report of 1879, thereby indorsed and adopted the resolutions which were appended as a part of that report.

Personally, and as a member of this society for many years, I can assure you that no proposition involving the application of the name Kearsarge to the Carroll County mountain ever received the slightest degree of indorsement or approval in this society.

Sincerely, yours,

OTIS G. HAMMOND, *Supt.*

UNITED STATES BATTLESHIP "KEARSARGE."

As to the naming of the battleship (corvette) *Kearsarge:* The records of the Navy Department do not show how the name became selected. The Boston Journal of June 4, 1861, states: "Dispatches from Washington give the names of the new sloops of war—the *Kearsarge, Ossipee, Housatonic, Wachusetts, Adirondack, Juniata,* and *Tuscarora.* Kearsarge is a well-known mountain in Merrimack County, New Hampshire, about twenty miles northwest of Concord. There is another mountain north of Lake Winnipiseogee, which modern tourists have confounded with the true one."

The New Hampshire Statesman for June 8, 1861, prints the following: "Of the new sloops of war built at Portsmouth, one will be named *Ossipee* and the other *Kearsarge.* These are Indian words, but, unlike many of that dialect, pass easily over the tongue. Kearsarge was suggested to the naval department by one of the publishers of this paper. He wrote that as the *Merrimack* was burned at Norfolk, it would be gratifying to New Hampshire folks to be again remembered in this matter of names of national vessels, and, in presenting Kearsarge, said it was an isolated and imposing eminence in the center of the State, in the midst of a loyal people, and that young

Ladd, who fell at Baltimore, crying, 'All hail to the stars and stripes,' was buried almost within its shadow, at Alexandria."

The Army and Navy Journal, 1864, has the following: "Kearsarge Mountain, from which Capt. Winslow's vessel receives its immortal name, is the highest mountain in the county of Merrimack, New Hampshire."

There are many other newspapers making mention to the same purport. There are none stating that the honor belonged to the Carroll County mountain, which at this period bore the name of Pequawket or Kiarsarge; neither was it so well known, which is very conclusive evidence that it could not have been the mountain after which the ship was named.

It is also stated that the selection of a name for this vessel was referred to Gov. Gilmore, of New Hampshire, with the suggestion to select an Indian name. He left the matter to his secretary, who was his son, Joseph H. Gilmore, who has since been for many years a professor in the Rochester University at Rochester, New York. He suggested "Kearsarge," the name of the mountain in Merrimack County, which he was familiar with and saw every day as he went to and from the statehouse. (A. P. Davis, the Manchester Daily Mirror, Feb. 24, 1896.) This statement is confirmed by the following letter:

THE UNIVERSITY OF ROCHESTER,
Rochester, N. Y., April 2, 1915.

DEAR SIR: In reply to your letter of March 31, I would say that, when my father was governor of New Hampshire, we received word from Washington that it had been decided to give Indian names to a certain class of cruisers, and that the governors of the loyal States were requested to suggest such names.

I was his secretary at that time, and he turned the matter over to me. I made out a list of Indian names, which was duly forwarded to the Navy Department.

The first name on my list was Kearsarge—not unnaturally; for, in driving to and from the statehouse every day (I resided in Penacook) I had a magnificent view of Mount Kearsarge in Merrimack County—which was the only Kearsarge that I or my father knew anything about.

Very truly, yours,

J. H. GILMORE.

MR. D. M. HILDRETH,
Washington, D. C.

The white-oak timber for the building of the *Kearsarge* was cut from the slopes or in sight of the Merrimack County Kearsarge. (Granite Monthly Magazine, vol. 15, p. 145.) It is the testimony of many distinguished people now living that it was the general and common knowledge that the ship was named for this mountain. (Ex-Senator Chandler of New Hampshire and many others.)

The *Kearsarge* became famous by defeating and sinking the *Alabama* June 19, 1864. After that event a large hotel was built on the side of the Merrimack County mountain and named in honor of the ship's captain, the "Winslow House." That hotel was destroyed by fire in 1867 and rebuilt on a larger plan. Admiral Winslow was given a reception in the first house and was present at the opening of the second (Aug. 18, 1868), when he gave the owner a large flag and a picture of the battle that was painted in France. Notable people were present, including the governor of the State, as well as many prominent citizens, who took part in the festivities and addresses, in which references were made to the ship and its namesake.

While Admiral Winslow lived he spent many of his summers on this mountain, and when he died, in 1873, a large bowlder was taken from its side to serve as his monument, with a bronze tablet attached, on which is inscribed a befitting memorial inscription, stating near the end, "This bowlder from Kearsarge Mountain, Merrimack County, New Hampshire, is the gift of the citizens of Warner, New Hampshire."

No claim was ever made in behalf of the Carroll County mountain until 1875, about which time a railroad was built through the White Mountain Notch nearby, and the locality became a summer resort. At this time Mr. G. V. Fox, of Lowell, Mass., became a summer resident of the said locality (North Conway) and became most active in presenting the claims in behalf of this mountain, for the honors appertaining to the older-named mountain. He even claimed that the Merrimack County mountain was not entitled to the name of Kearsarge. (Appalachia, vol. 1, p. 202.) He wrote the article on "Kearsarge" in Johnson's Encyclopedia (ed. 1875), which seems to be the basis for the one in the "International Encyclopedia of 1911." He claims, 14 years after the event, that it was on the suggestion of his wife that Secretary Welles named the vessel. He admits later that he received the letter of Major McFarland, of the "Statesman," May 31 or June 1, 1861, suggesting the name of Kearsarge. Secretary Welles, in a letter of Sept. 27, 1875, states: "I first directed that the corvette should be called *Kearsarge;* but Mr. Chase (Secretary of the Treasury), a New Hampshire man, corrected my pronunciation and orthography. We had, I recollect, a little dispute, and I quoted Gov. Hill; but Mr. Chase convinced me he was correct." This seems to indicate that the final designation was fixed by the aid of Secretary Chase, who lived as a boy near and in sight of the Merrimack County mountain, in Cornish. The Carroll County mountain was known at that time by the name of Pequawket or Kiarsarge, and being near to other higher peaks of the White Mountains and before the railroad was built to its vicinity, was not so well known. Therefore it must have been the Merrimack County mountain that gave the name to the warship.

A writer over the name of "Hawser" in the Boston Journal for September 4, 1874, speaking of Kearsarge Mountain in Merrimack County, says: "The name of this mountain was given to the United States gunboat which under the command of that gallant officer, the late Admiral John A. Winslow, sank the privateer *Alabama* off Cherbourg after a short, sharp, and very decisive action, an action which, for the general interest and excitement it caused throughout the civilized world, has seldom been exceeded.

"It often happens, unfortunately, that Kearsarge Mountain is confounded with another mountain in a different part of New Hampshire, which is the cause of much perplexity to strangers. A mountain in North Conway, to which is attached no little celebrity, is of late years generally known as Mount Kiarsarge. Why the name Kiarsarge was given to the mountain in North Conway I have no knowledge. There probably is some reason. I am confident that it has no legitimate right to that name. The good old Indian name of Pequawkett was formerly applied to a large tract of country in that neighborhood * * *. The mountain in North Conway called Kiarsarge and in some of the latest maps spelled Kearsarge was formerly known as Mount Pequawkett. When I visited that region more than thirty years ago, I heard nothing of Mt. Kiarsarge, but much of Mount Pequawkett, and I now humbly petition that, for obvious reasons, besides restoring a good old Indian name, the name of Kiarsarge be henceforth expunged from all guides, books, maps, and geographies as applied to the mountain in question and Pequawkett substituted."

The following letter is of interest as bearing on the Indian origin of the name "Kearsarge."

SMITHSONIAN INSTITUTION,
BUREAU OF AMERICAN ETHNOLOGY,
Washington, D. C., April 9, 1915.

DEAR SIR: In response to your communication of March 27th, I beg leave to say that your inquiry was referred to Mr. J. N. B. Hewitt, of this bureau, who gives the following information:

"The words Carasaga and Cusagee and Kyrsarge are, like Kearsarge, seemingly corruptions of the fuller form Cowissewaschook, which in turn is apparently a different spelling of Kowa-is-atchu-ok, meaning "At the Mountain of Small (Young) Pines." Kearsarge as a name without the locative should signify "Mountain of Small (or Young) Pines."

Very truly, yours,

F. W. HODGE,
Ethnologist in Charge.

Mr. D. M. HILDRETH,
Washington, D. C.

The summary facts about the names of these mountains can be thus stated:

1. The Merrimack County mountain first received the name of Carasaga in 1639, eighty-six years before the Carroll County mountain was called "Pigwackett" in 1725.
2. That the Merrimack County mountain has always been known by the same name.
3. That the name "Pigwackett" was used for the Carroll County mountain in 1725. That "Pigwacket Hills" was used on Mitchell and Hazzen map of 1750 for hills or mountains in this vicinity.
4. That "Pigwackett" was applied by the English from the name of the surrounding country, which was called after the Pequawket Tribe of Indians that dwelt therein.
5. That later when the locality about this last mountain was occupied by settlers from towns in the vicinity of the older named mountain, because of a similarity of appearance, these settlers called it by the same name.
6. The name Kearsarge or Kiarsarge has not been in general use for the Carroll County mountain.
7. It was more generally known as Pequawket before about 1860.
8. After about 1860 Pequawket or Kiarsarge.

9. Since 1875 only residents in its vicinity have been persistent in the use of the name of Kearsarge.

10. Efforts have long been made by officials and prominent citizens as well as the Historical Society of the State, to have each bear a separate name; one Kearsarge and the other Pequawket.

11. The warship *Kearsarge* was named after the Merrimack County mountain.

THE UNITED STATES GEOGRAPHIC BOARD.

The United States Geographic Board at its meeting on January 6, 1915, decided that Kearsarge was the proper name of the mountain located in Merrimack County and Pequawket of the one in Carroll County. Upon request and the further presentation of data relating to names of these mountains the board at its meeting on April 7, 1915, reviewed and unanimously confirmed its former decision.

64TH CONGRESS }
1st Session } SENATE

CONSTITUTIO

ARTICLE

ENTITLED

BACK TO THE CONSTITUTI

BY

WALTER CLARK, LL. D.

Chief Justice of the Supreme Court of th
State of North Carolina

PRESENTED BY MR. LA FOLLETTE
FEBRUARY 3, 1916.—Ordered to be printed

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BACK TO THE CONSTITUTI

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Law was long ago defined as “a rule of action supreme power in the State, commanding what i hibiting what is wrong.” Which is the body in has the last supreme word in legislation? Under ernment we have an executive, a legislative, and a ment. The theory taught in the law schools is tha separate and distinct and that neither can interfer Laying aside preconceived opinions and deceptive sion, what is the real government which we have?

The legislative is understood to be the lawmal name imports. If so, it should be the supreme England. In what ways do the Constitution of t and the constitutions of the States place any restr body? According to the Federal Constitution and the States, there is only one restriction that anothe place upon the lawmaking body and that is that interpose his veto upon any legislation which does him, but the Constitutional Convention did not se an absolute veto. For that would have placed the the executive. The executive was not given the was provided that by a certain vote, which is t Federal Constitution and varies in the different St be overruled by the lawmaking body if it adheres t is in accordance with the theory of our Governme the lawmaking body is one of restrictions; that is, the people and has all power that is not denied it b whereas, the executive and judicial are grants of no authority except that conferred by the Constitu statement made by Black[1] and sums up correctly tl State and Federal Constitutions as they are written Government, which is not an original sovereignty, after the Revolution, of the States, the authorit lawmaking body is also a grant of power, for it should have, no powers except those expressly co sarily inferred from those that are given.

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[1] Black, Constitutional Law, sec. 100.

Now, as to the executive (both State and Federal), its only powers are those which are expressly given or derived by necessary inference from those that are conferred. The only authority given this department to interfere with the others in any way is the veto already mentioned, and that is not absolute, but subject to be overruled by a legislative vote. In four States—Rhode Island, North Carolina, West Virginia, and Ohio—the governor was even denied any veto power, though in some of these in later years it has been conferred.

As to the judicial department the power of the executive over it was in the appointment of the judges. This at first was very general, but now the number of States in which they are appointed by the governor, with the consent of the senate, has been reduced to seven. The control of the judiciary department by the legislative was made more complete in that in those States where the governor appoints the upper house can affirm or reject his nomination, and in all of them the legislative department has supervision of the conduct of the judges and can remove them by impeachment. In three of them—Massachusetts, New Hampshire, and Rhode Island—the legislature, as in England, can remove the judges without trial, by a majority vote.

It may be mentioned here that the common idea that the judges in England hold absolutely and for life is a mistake. Up to the revolution of 1688 they held at the pleasure of the King, who could remove any judge at any time without a trial. Since 1688 the judges in England, as in the three American States above named, hold at the King formerly did, at will and without trial.

This being the status of the other two departments of the Government, as expressed by the organic law, what is the place contemplated for the judiciary department, taking the constitutions as they are written? There was given to the judicial department no authority whatever over the other two departments of the Government. There was not conferred on it, as upon the executive, any veto over the action of either of the other two departments, not even the suspensive veto conferred on the executive. Its members were originally appointed in all the States by the executive, save in those in which such appointment was subject to confirmation by the legislative department and a few States in which the judges were elected by the legislature. It was thus the creature of one or the other, or both the other departments jointly, and the members of the judiciary were made removable, as already said, by the legislative department, while in three of them they still hold at the pleasure of the legislature. In the Federal Government all the judges of the circuit and district courts hold subject to the right of Congress to legislate them out of office at any moment. In 1802, 16 circuit judges were thus legislated out of existence by Congress, and at sundry times since district courts have, in like manner, been abolished. As to the Federal Supreme Court, it holds its appellate jurisdiction "with such exceptions and under such regulations as Congress shall make."[1] Indeed, as to the reconstruction act, Congress enacted[2] that the courts could issue no writ to construe the validity of such statutes, and the court held that it could issue none.[3] The United States judicial department, therefore, is the creature of the legislative department, which, from time to time, can increase or diminish the number of the judges inferior to the Supreme Court. The number of judges on the Federal Supreme Court is not fixed by the Constitution but by Congress, which, from time to time, has increased or diminished the number when it thought the public interest demanded; for instance, when it was thought desirable to change the ruling of the court as to the legal tender act.

The court being the creature of the legislature and subject to it for the extent of its jurisdiction and for its existence to a large degree, whence comes it that the court has been exercising the supreme power in our Government—i. e., the last word in legislation?

There is certainly no express authority for "judicial supremacy" or the "judicial veto," by which that department assumes the irreviewable and therefore the absolute supremacy over the other two departments. There is not a line in the constitution of any State or in the Federal Constitution to authorize it. If there were, it would only be necessary to point to the words and end all debate. There would be no necessity for sophistical argument, and we would be saved the absurd spectacle of attempting to support the authority of the court upon the fact that some other court, at some other time, had made the same assertion. The former assertion is as groundless as one made now, unless the authority can be found in the Constitution.

It would be very strange, indeed, if any constitutional convention had conferred the last and ultimate power of sovereignty upon a majority of a board of appointive judges, an authority which was denied to the legislature by the suspensive veto given the Executive; and when it had denied an absolute veto to the Executive. Yet the judiciary was the creature of the other two departments until, in more recent years, in a majority of the States, but not yet in the Federal Government, the judges have had the dignity conferred upon them of a direct mandate from the people by election at the ballot box. It may be noted also that this change from an appointive to an elected judiciary was brought about as a check upon the irreviewable and irresponsible power assumed by the courts of setting aside the action of the legislative, approved by the executive, department.

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[1] United States Constitution, Art. III, sec. 2.

[2] Act 27 Mar., 1868.

[3] Ex parte McCardle, 74 U. S. (7 Wall.), 506.

It would consume too much space to discuss the assumption of this power by the State courts, as it has been more flagrant in some States than in others. Latterly there has been a further curb sought to be imposed upon the assertion of this supreme power in the courts by the adoption of the "recall of the judges" in the State constitutions in eight States. Those who, like the writer, do not think the "recall of the judges" advisable, may well consider the fact that a free people will not willingly consent that the action of their duly elected representatives empowered to make their laws and of their duly elected executive shall be brushed aside by a bare majority of a board of lawyers without any authority conferred in the Constitution.

Have the courts assumed this irreviewable power and asserted for a majority of the court an infallibility which they have denied to the minority of the court, and to the other two departments of the Government?

Taking the Federal court as an example, a few instances will make reply. Not long after the Federal Supreme Court was created—and it will be remembered that it was created and its jurisdiction fixed by an act of Congress, the judiciary act of 1789, and not by the Constitution—that court haled a sovereign State before it and passed sentence in Chisholm *v.* Georgia.[1] Immediately the people took the alarm and the eleventh amendment was passed to prevent the repetition of the sight of a sovereign State being brought into court at the suit of a private individual. It was fortunate that this was done, for otherwise the docket would have been crowded since with actions by the American Tobacco Co., the Standard Oil Co., and various railroad companies, bringing into court the States whose legislation was not acceptable to those great aggregations of wealth.

The next assumption of power was in Marbury *v.* Madison.[2] John Marshall was Secretary of State. In January, 1801, he was appointed Chief Justice and qualified as such and took his seat on the bench January 30, 1801, still retaining, however, his position as Secretary of State. President John Adams having been defeated for reelection, at midnight on March 3, John Marshall as Secretary of State was signing and sealing commissions when, as the clock struck the hour of 12, Levi Lincoln (as Parton tells us), with President Jefferson's watch in hand, forbade Secretary of State and Chief Justice Marshall to deliver the commissions then upon the table already signed. Among them was one to Marbury as justice of the peace of the District of Columbia.

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[1] 2 Dall., 419.

[2] 1 Cranch, 137.

Soon thereafter there was brought before the Supreme Court, of which Marshall was still Chief Justice, a proceeding to compel Mr. Madison, the new Secretary of State, to deliver to Marbury the commission which Marshall himself had signed while occupying the double position of Secretary of State and Chief Justice.

Instead of declining to sit in judgment upon his own act, Marshall as Chief Justice wrote a long decision in which he asserted that the courts had the power to set aside an act of Congress, but wound up finally with dismissing the proceeding upon the ground that the court had no jurisdiction to issue mandamus, as the act of Congress had not conferred such power. Thus, in an obiter dictum, this vast and irreviewable power, which places in a majority of the Supreme Court the ultimate sovereignty of the Nation, became a precedent. It was known that if the court had directed the writ to issue Mr. Jefferson would not have obeyed it. By announcing the doctrine and refraining from any exercise of authority under it, the powerlessness of the court was veiled, while its assertion of supremacy was distinctly made. Later when Chief Justice Marshall in another case did assert the power to issue a writ of ejectment in derogation of a statute of Georgia, Andrew Jackson pithily said, "John Marshall has made his decision, has he? Now, let us see him execute it." It was never executed and has remained as so much blank paper. The evil from the assertion of the doctrine of ultimate supremacy of the courts has, however, abided with us.

It was not again asserted as against any act of Congress, however, for 54 years, and then in the Dred Scott case.[1] The criticism of that decision by Abraham Lincoln was sharp and shrewd. That decision, probably more than anything else, made the great Civil War inevitable and brought in its train the enactment of the thirteenth, fourteenth, and fifteenth amendments.

We can not overlook the fact that the Supreme Court, in reaching out for more power, held in 1842 that a corporation was a citizen of the State which had created it.[2] Up to that time the court had uniformly held that a corporation was not a citizen within the meaning of the "diverse citizenship" clause of the Constitution. The result of this "change of front" was that corporations have brought their cases in the Federal courts in overwhelming numbers before life-tenure, appointive judges, most of whom have been trained in the employment of corporations. As the president of one great railroad company said when he defied a State statute regulating its rates, "the Federal courts are the haven and home of corporations."

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[1] Dred Scott v. Sandford, 19 How., 393.

[2] Louisville, C. & C. R. Co. v. Litson, 2 How., 497.

Later on we had another spectacle. The legislature elected by the people of New York, in the discharge of the police powers resident in every State government, passed an act restricting the hours of labor of bakers subjected to excessive heat in their trade. The highest court in New York promptly held that the people of the State could thus protect the health and the lives of its laborers.[1] The case was carried into the Supreme Court of the United States, and there, by a vote of five infallible judges against four fallible judges, the powers of the States were set aside and it was held that the great State of New York could not thus protect the lives and health of its laborers because it would interfere with the "liberty of contract."[2] The reason given was worse even than the usurpation of authority. It was an insult to the intelligence of the public, for everybody knew that these bakers were not seeking to vindicate the liberty of contract, but were asking to be protected in their lives and health. The decision of the court was in truth based upon unwillingness to curb the power of the employer over the employee.

Further back we had been treated to the spectacle in the Dartmouth College case[3] of the court holding that the charter of a corporation was not a privilege but a contract, and therefore irrevocable, with the sequence that if a corrupt legislature could be induced to grant a charter, no subsequent honest legislature could revoke it. There would be no place left for the people to control their own government. To meet this condition the people of the several States promptly made amendments to their constitutions, by which it was provided that charters of all corporations granted thereafter should be subject to change, modification, or repeal at the will of the legislature. It was thus that the people were forced to regain their control over their creatures by nullifying the decision of the courts.

For 100 years the court had held an income tax constitutional. By this means, indispensable aid had been given to the party of the Union in carrying on the Civil War. But those who were called upon to pay the income tax, the multimillionaires and great corporations, again presented a case calling in question the validity of the action of Congress. The Supreme Court, following the precedents from the foundation of the Government, but only by a bare majority, again affirmed the power of Congress. Soon thereafter one of the majority judges, having received possibly a wireless intimation of the views of the 39 men who signed the Constitution at Philadelphia in 1787, let it be known that he had experienced a change of heart. A petition for rehearing was granted and then by another vote of five infallible judges against four fallible judges (with a change of personnel, however) the act of Congress was held unconstitutional, though it had been passed by an almost unanimous vote in both Houses of Congress and had been approved by the President.[1]

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[1] Lochner v. New York, 177 N. Y., 145.

[2] Lochner v. New York, 198 U. S., 45.

[3] Dartmouth College v. Woodward, 4 Wheat., 518.

The result of this astounding change was that more than $100,000,000 of taxes annually were transferred from those best able to pay them and upon whom Congress, with the approval of the President had placed them, and were imposed upon the toiling masses who were already overtaxed. The people of the Union would not stand for this, and again a constitutional amendment was passed and finally adopted. But in the meantime it is estimated that more than $2,000,000,000 were levied upon the producers of the country to the exemption of the great corporations and of the multimillionaires upon whom Congress in the discharge of its duties and powers had seen fit to lay it.

Other instances of this abuse of irresponsible power by the courts could be cited, in both the Federal Supreme Court and many of the State courts. But it should go without saying that irresponsible and irreviewable power is always tyranny. Even if its effects are not always as evil as in the cases thus cited, it is intolerable because it is in contradiction of the will of the people, upon whom we boast that our Government rests: "All power proceeds from the people and should be exercised for their good only."

Not only such power was not given to the judiciary in any constitution, State or Federal, but in the convention at Philadelphia there was an attempt to put it in the United States Constitution. It was voted down, though the clause was brought forward by James Madison, afterwards President of the United States, and by James Wilson, afterwards a member of the United States Supreme Court. That convention sat with closed doors, with its members sworn not to communicate any of its proceedings to their constituents, and a vote to destroy its journal was prevented only by a bare majority. That journal was not made public for 49 years, and we now know from it that this proposition that the judges should pass upon the constitutionality of acts of Congress was defeated four times, i. e., first on June 4, 1787, receiving at that time the vote of only two States. It was renewed no less than three times, i. e., on June 6, July 21, and, finally, for the fourth time on August 15, and at no time did it receive the vote of more than three States. On this last occasion (August 15) Mr. Mercer thus summed up the thought of the convention: "He disapproved of the doctrine that the judges, as expositors of the Constitution, should have authority to declare a law void. He thought laws ought to be well and cautiously made and then to be incontrovertible."

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[1] Pollock v. Farmers' L. & T. Co., 158 U. S., 601.

The doctrine that the courts can set aside an act of the legislature has never obtained in England, which has no written constitution, nor in France, Germany, Holland, Belgium, Denmark, Austria, Norway, and Sweden, nor in any other country that has a written constitution. Its assertion in this country has not therefore even the "tyrant's plea of necessity." The rest of the world have gotten along very well without it.

The courts have attempted only once in England to assert a right to set aside an act of Parliament, and then Chief Justice Tressilian was hanged and his associates exiled to France, and hence subsequent courts have not relied upon it as a precedent.

Of course, there have been expressions at times in the courts of England criticizing acts of Parliament—generally with great modesty, but sometimes going to the extent of saying that they were not valid—but this never extended beyond an expression of disapproval, for no court in England since Tressilian's day has refused to obey an act of Parliament.

Prior to the American Revolution the acts of our colonies were sent home to England, where they were allowed or disallowed by the privy council, for in this way the mother country held its control over the colonies. After the acknowledgment of the independence of the thirteen Colonies, and before our Federal convention met at Philadelphia, the courts of four States—New Jersey, Rhode Island, Virginia, and North Carolina—had assumed to themselves the power formerly exercised by the privy council in England. This met with immediate and strong disapproval, and in Rhode Island the judges were "dropped." These decisions were well known to the members of the convention at Philadelphia. Mr. Madison and Mr. Wilson favored the new doctrine of the "paramount judiciary" as a safe check upon legislation, for government by the people was new and the property holders were fearful of the excesses of an unrestricted Congress.

The attempt was to get the judicial veto into the Federal Constitution in its least objectionable shape by submitting the acts of Congress to the court before the final passage of an act, but even this failed, for, though four times presented by these two very able and influential members, this suggestion of a "judicial veto" at no time received the votes of more than one-fourth of the States. There can be no doubt that if such power had been inserted the Constitution would never have been ratified by the several States.

It is true that the Constitution does prescribe that the Constitution of the United States and the acts passed under the authority thereof shall be supreme over the State constitutions and laws. This is necessary in any Federal Government. This does not, however, confer upon the Supreme Court the power to set aside acts of Congress, like the income-tax act and other statutes, not involving the boundary line between State and Federal jurisdiction. The very fact that this provision was put into the Federal Constitution shows that the convention did not intend to confer upon the court the unlimited power claimed later under the doctrine of Marbury *v.* Madison. Aware of this defect, the court since the war has sought to found its jurisdiction to nullify legislative action upon the fourteenth amendment. It has been well said that that amendment, which was intended for the protection of the negro, has failed entirely in that purpose, but has become a very tower of strength to the great aggregations of wealth. Not only no force can be justly given to the construction placed by the Supreme Court upon the fourteenth amendment, from the knowledge of the history of its adoption, but the words used can not fairly be interpreted as they have been. "Due process of law" means the orderly proceeding of the courts, and the "equal protection of the laws" was never intended to give to the Federal courts irreviewable supremacy over Congress and the President.

It is not too much to say that the ingenious reasoning in Marbury *v.* Madison and the construction placed upon the fourteenth amendment have had the same origin in the desire of the Supreme Court to amplify its jurisdiction, and in the desire of the great interests to hold the courts as a shield between them and the action of Congress and the legislatures when they have not succeeded in defeating legislation by fair means or foul.

But as a last resort, it is urged, must not Congress and the legislatures obey the Constitution? Most certainly. The Members take an oath to do so, and there is as much patriotism and, considering the larger size of legislative bodies, a greater aggregate intelligence in them than in the courts. But it does not follow that if a legislature, or Congress, misconceives or violates the Constitution, the courts have the power to nullify their action. The only supervising control of the legislative body given by the constitutions is the veto of the executive, not of the courts, and that executive veto is only suspensive. If the legislature still insists, the supervising power is in the people in the election of Senators and Representatives who will put a more correct construction on the Constitution.

It must be remembered that there is no line in the Constitution which gives the courts, instead of the people, supervision over Congress or the legislature. There is no constitutional presumption that five judges will be infallible and that four will be fallible. If the legislative and executive departments of the Government err the people can correct it. But when the courts err, as they frequently do—

for instance, as in Chisholm *v.* Georgia, in the Dartmouth College case, or in the Income Tax case, not to mention others—there is no remedy except by the long, slow process of a constitutional amendment or by a change in the personnel of the court, which is necessarily very slow when the judges hold for life as they do in the Federal courts.

I do not intend to question the ability and integrity of Chief Justice Marshall. Like other men, he saw the world from his own standpoint and from his environment and with the prepossessions of his day. He had small faith in the capacity of the people for self-government. He believed in a strong central government and distrusted the States. He believed that the function of government was the protection of property rights, which he thought jeopardized by the rule of the people, who were mostly without property. At that time the experiment of popular government was untried and the people were uneducated. Moreover, he was a strong man, rugged and earnest, and like most strong men he annexed all the jurisdiction he could lay hands upon. While his course upon the bench was in many respects of inestimable good, in such decisions as Marbury *v.* Madison, the Dartmouth College case, and others, he went beyond the necessities of the occasion and certainly beyond, far beyond, the authority conferred on the courts by the Constitution. Smaller men have extended his doctrines to their logical conclusion in more recent cases which have alarmed the public conscience, and a restoration of the jurisdiction of the court to its true limits is a necessity. As that jurisdiction has been defined in more recent cases, all legislation now depends for its validity, not upon the will of the people as expressed through Congress and State legislatures, but upon the economic views of five lawyers, to whom "due process of law" and "equal protection of the laws" mean simply what they believe is for the real good of the people. In their hands the power of the courts over legislation is neither more nor less than an irreviewable veto upon any expression of the public will that does not meet their approval.

Let us go "back to the Constitution" as it is written. Let Congress and the legislatures legislate, subject to the only restriction conferred by the Constitution—the suspensive veto of the Executive—and with further supervision in the people alone, who can be trusted with their own government—else republican form of government is a failure.

Under our plan of government the people alone are sovereign. Judges, governors, presidents, member of legislatures and Members of Congress are all alike servants of the people. No right is given in any constitution to either department to supervise the action of the others. The sole supervisional authority is in the people. It has nowhere been given to the courts.

Suppose Congress and the State legislatures were restricted to lawyers and that they should be appointed for life. Would the people tolerate for 24 hours legislation by such a body, even though expressly authorized by the Constitution? But we have a *super-Congress* in a body of nine appointive lawyers, of whom five can set at defiance the will of 100,000,000 people, as expressed by their duly elected representatives and approved by their elected executive. Legislation by these latter can be reviewed and set aside at the next election. But when five men out of nine legislate by construction or by rejection of legislation the people are powerless. It is true the five men claim to apply against the will of the people of to-day the testamentary will of 39 dead men who signed a paper writing over a century and a quarter ago. But they may err in their interpretation of that instrument as the decision is often 5 to 4. When they claim to apply "due process of law" and "equal protection of the laws" they can not define and have never attempted to define these words. Their autocratic rule is simply "the size of the chancellor's thumb"; that is, whatever the majority of the nine men think should be done to the statute. Can such a system wholly unwritten in the Constitution be looked upon as more than a claim of "divine right" to govern?

The love of us lawyers for precedent, and a feeling of professional pride that five lawyers on the Supreme Court can say to the other departments of the Government, nay, to the people themselves, as has been asserted, "Thus far shalt thou go, and no farther," appeal to us. But this is the *defiance* of the servant to the master, the challenge of the creature to its creator.

There is no room in a republican form of government for "judicial hegemony."

WALTER CLARK.

RALEIGH, N. C.

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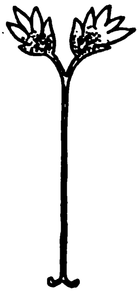
64th Congress }
1st Session }
SENATE
{ Document
{ No. 309

SUGAR STATISTICS

BY THE

HAWAIIAN SUGAR PLANTERS' ASSOCIATION

403 BANK OF HAWAII BUILDING
HONOLULU, HAWAII



PRESENTED BY MR. WARREN
February 3, 1916.—Ordered to be printed

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

SUGAR STATISTICS.

PREAMBLE.

Sugar first figured as a commercial commodity in H during which year 4,286 pounds were exported. The industry was but very gradual and it was not until 1 Governments of the United States and the Hawaiian Is into a reciprocity treaty, that production gathered an impetus. From 1876 steady advances were made, a stimulus was infused into the industry when the islands to the United States in 1898.

NUMBER OF SUGAR PLANTATIONS.

There are 52 plantations producing sugar. All but and operate sugar mills.

STOCKHOLDERS.

Forty-seven plantations (45 corporations, 1 partn estate) which produced for the 1914 crop 598,233 tons, 9,727 stockholders. The 5 plantations not reporting said crop 19,075 tons.

Total production of the Hawaiian Islands in tons of 2,000 p

Year ending Sept. 30—	Hawaii.	Maui.	Oahu.	I
1910	158,819	139,454	128,648	
1911	193,456	139,564	133,133	
1912	209,920	148,585	139,712	
1913	197,415	124,819	124,228	
1914	217,654	144,940	133,560	

AREA UNDER CULTIVATION IN SUGAR CAN

The area under cultivation in sugar cane is shown in table. The time required to mature and harvest a crop in Hawaii is 24 months. There are always two—a three—crops under cultivation.

Island.	Fee simple.	Government lease.	F
	Acres.	*Acres.*	
Hawaii	41,698.61	18,202.16	41
Maui	29,661.00	8,111.65	11
Oahu	3,174.91	2,773.73	34
Kauai	17,310.29	6,309.30	1
Total	91,844.81	30,396.84	9

YIELDS PER ACRE.

It takes two years for one crop to mature, so to obtain average annual yield per acre, divide by 2.

Crop yields.	Area harvested.	Average yield per acre.
	Acres.	*Short tons.*
1910	110,247	4.69
1911	112,796	5.09
1912	113,898	5.23
1913	113,548	4.81
1914	114,458	5.40

COST OF PRODUCTION.

The cost of production at market per short ton of sugar, exclusive of interest on investment and income taxes for five years last past has been shown in the following table. A small tonnage does not report detailed figures.

Year.	Tons of sugar.	Total cost.	Cost per ton.
	Short tons.		
1910	478,252	$26,986,160	$56.426
1911	524,052	30,543,013	58.28
1912	548,351	31,360,598	57.19
1913	507,162	30,113,512	59.376
1914	574,809	30,840,960	53.654
Average, 5 years	526,525	29,968,884	56.918

The crop harvested in the year 1914 was produced under the most favorable climatic conditions, resulting in a very high average yield per acre and a consequent reduction of the average cost per ton of sugar; also unusual effort was exercised to curtail expenses, the purchase of supplies principally having been curtailed in view of the impending tariff changes and the reduction and removal of the tariff on sugar.

MARKETING COST.

In connection with marketing Hawaiian sugar it may be pointed out that the Territory of Hawaii is subject to the coastwise shipping laws of the United States; that the entire crop of Hawaiian sugar is marketed in vessels flying the American flag, owned and operated with American capital. The freight from Hawaiian ports to New York, aside from any other charge, has been $9.50 per ton up to the opening of the canal, the rate now being $8.50 per ton. Upon the other hand, the Cuban crop is marketed in the United States upon vessels flying any flag and at a cost from Cuban ports to the eastern ports of the United States of, upon an average, not exceeding $2.25 per ton.

Capitalization and taxation value as of Jan. 1, 1915.

Number of plantations reporting figures	44
Crop of 1914 produced by said plantations (short tons)	574,809
Capitalization Jan. 1, 1915	$75,410,184
Assessed value Jan. 1, 1915	71,442,656
Property tax for 1915	1,017,683.96
Conservation tax for 1915	124,787.10
Income tax for 1915	246,474.02
Federal taxes for 1915	114,084.81
Total amount of taxes to be paid by said plantations	1,503,029.89
Amount of taxes per ton of sugar	2.615

DIVIDENDS PAID.

During the past five years dividends have been paid as follows:

Year.	Number of plantations reporting.	Tons.	Capitalization.	Total dividends.	Per cent dividends.
1910	43	478,252	$71,655,421	$8,899,386	12.45
1911	43	534,052	74,286,141	9,899,866	13.31
1912	43	548,351	75,286,141	10,353,059	13.75
1913	43	507,162	75,579,941	4,314,981	5.709
1914	44	574,809	75,410,184	6,873,221	9.114

Number and nationality of plantation laborers.

Jan. 1.	American.	Hawaiian.	Porto Rican.	Portuguese.	Spanish.	Russian.	Filipino.	Japanese.	Chinese.	Korean.	All other.	Total.
1905	636	1,299	1,842	2,868	......	......	......	30,180	3,758	3,138	503	44,220
1910	652	1,091	1,820	3,577	502	245	3,288	27,258	2,591	1,549	273	42,846
1915	624	946	1,477	3,545	1,575	94	5,836	26,790	2,294	1,451	320	44,959

Unskilled day laborers, contractors, and planters, Jan. 1, 1915.

Total unskilled day laborers, all nationalities	25,568
Total contractors and planters, all nationalities	17,689

WAGES AND EARNINGS OF LABORERS.

Unskilled day laborers.—Minimum wage, $20 per month; average wage, $26 per month; exclusive of perquisites consisting of house, water, fuel, and medical attendance, which are estimated to cost employers $6 per month per laborer; also exclusive of bonus, which for the 2 years 10 months ended October 31, 1914, was 19 per cent of earnings. The bonus earned to April 30, 1915 (from Nov. 1, 1914), is 17 per cent of earnings.

Contractors and planters.—Earnings range from $20 to $60 per month (exclusive of perquisites), varying as the season may be favorable or unfavorable and according to the class of work contracted for.

EFFECT OF REMOVAL OF DUTY UPON SUGAR PRODUCTION IN HAWAII.

During the last five years, or from 1910 to 1914, inclusive, a period of unusual prosperity within the Territory, the annual production of sugar by Hawaiian plantations has averaged 568,601 tons. The average quotation of raw sugar in New York during this period was 4.025 cents per pound, or $80.50 per ton. The average price realized at market by Hawaiian plantations was $78.27 per ton. The average cost of production for the entire Hawaiian crop during this period, exclusive of any charge for interest upon investment, betterments, or income taxes, or, in other words, the actual cost which is represented by the labor and material actually entering into the production of sugar, together with the marketing charges, was $56.91 per ton.

During the years from 1910 to 1913, inclusive, or four years of the five-year period, the Cuban duty was $26.96 per ton. Assuming that there had been no duty upon sugar within this period and that the price of sugar had been less the amount of duty, the Hawaiian crop for these four years would have realized $51.31 per ton, against an actual cost of $56.91 per ton, or there would have been an actual loss of $5.60 per ton upon something over 2,000,000 tons shipped during these four years.

During the year 1914 the average quotation of raw sugar in New York was 3.814 cents per pound, or $76.28 per ton. The average price realized at market by Hawaiian plantations was $72.85 per ton. The Cuban duty during the greater portion of 1914 was $20.09 per ton. With the Cuban duty off, the price received would have been $52.76 per ton against an average cost of $56.91 per ton, or an actual loss of $4.15 per ton upon 617,000 tons shipped in 1914.

The year 1914 was an unusual one, however, as, owing to the outbreak of the European war in August, the price of sugar jumped practically $40 per ton overnight. For the first seven months of 1914, from January to July, before hostilities in Europe commenced, the average price of sugar in New York was 3.17 cents per pound, or $63.40 per ton. The average price realized at market by Hawaiian plantations during this period was $60.04 per ton. Assuming the present Cuban duty of $20.09 was deducted from this price, the price received for the Hawaiian crop would have been $39.95 per ton, against an average cost of production of $56.91 per ton, or a loss of $16.96 per ton.

As to what the ruling prices for sugar may be in the future no one can tell, but if under normal conditions the same average prices are maintained as have prevailed for a period of 18 years past, based on the average cost and freight quotations for 96° centrifugals, Cuban sugars without duty, the average price Hawaiian sugar might be expected to realize would be approximately $51.04 per ton, against an average cost of production, exclusive of any expenditures for betterments, income taxes, or interest on investments, of $56.91 average over a period of five years.

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64TH CONGRESS
1st Session

SENATE

DOCUMENT
No. 310

GASOLINE

LETTER

FROM THE

SECRETARY OF THE INTERIOR

TRANSMITTING

CERTAIN INFORMATION, IN RESPONSE TO A
SENATE RESOLUTION OF JANUARY 5, 1916,
RELATIVE TO THE PRODUCTION,
CONSUMPTION, AND PRICE
OF GASOLINE

FEBRUARY 3, 1916.—Referred to the Committee on Printing

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

REPORTED BY MR. FLETCHER.

IN THE SENATE OF THE UNITED STATES,
February 7, 1916.

Resolved, That the report on production, consumption, and price of gasoline, submitted by the Secretary of the Interior on February 2, 1916, in response to Senate resolution No. 40, Sixty-fourth Congress, be printed as a Senate document, together with accompanying illustrations.

Attest:

JAMES M. BAKER, *Secretary.*

LETTER OF TRANSMITTAL.

THE SECRETARY OF THE INTERIOR,
Washington, February 2, 1916.

DEAR SIR: I beg to acknowledge receipt of Senate resolution No. 40, asking for certain information as to the production, consumption, and price of gasoline, and in reply thereto submit the following answers.

Respectfully,

FRANKLIN K. LANE,
Secretary.

Hon. THOMAS R. MARSHALL,
Vice President of the United States.

SENATE RESOLUTION NO. 40.

IN THE SENATE OF THE UNITED STATES.

JANUARY 5, 1916.

Mr. McCUMBER submitted the following resolution; which was considered by unanimous consent, amended, and agreed to.

Resolved, That the Secretary of the Interior be directed to furnish the Senate, for its use, such information as his department may have on the production, consumption, and price of gasoline, as follows:

First. The total amount of gasoline produced in the United States each year since nineteen hundred.

Second. The amount of gasoline consumed in the United States each year during said period.

Third. The several fields of production in the United States and the amount produced in each field during said period.

Fourth. What has been the prevailing wholesale price of crude oil at the several fields of production each year during said period.

Fifth. What fields and to what extent are becoming exhausted.

Sixth. What new fields have been developed during said period, and the production of such new fields.

Seventh. What known fields or areas are yet undeveloped, and what are their possibilities for oil and gasoline production, in the United States and elsewhere.

Eighth. What new method or methods have been evolved to increase the percentage of gasoline produced from the crude oil or to cheapen the cost of production in any way.

Ninth. To what new uses have gasoline and petroleum or coal oil been applied during the said period.

Tenth. So far as the records of his department will disclose, what has been the production and consumption of gasoline in the world, outside of the United States, each year during said period.

Eleventh. To what extent have the war conditions in Europe influenced the production and consumption of gasoline.

Twelfth. What cause, if any, can be given for the sudden extraordinary rise in the retail price of gasoline.

Thirteenth. To what extent has the interior-combustion engine been responsible for the increased consumption of gasoline, and what has been the extent of the increase of such engines and their general uses during said period, with special reference to number and increase of stationary engines, farm traction engines, automobiles and motor boats, and so forth.

Fourteenth. What fields are now nonproductive or limited in their production because of deficiencies in the laws in relation to the disposition of public lands containing deposits of oil, and what areas have been withdrawn from entry to await action by Congress.

Fifteenth. Any other information which may be useful or beneficial in the consideration of the subject of production and consumption of gasoline.

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a region of indefinite boundaries that includes a number of subordinate and generally detached areas of actual oil production referred to as pools. The ten fields are:

The *Appalachian field*, including all areas of oil production in southwestern New York, western Pennsylvania, southeastern Ohio, western West Virginia, Kentucky, and Tennessee.

The *Lima-Indiana field*, embracing all areas of oil production in northwestern Ohio and eastern Indiana, as well as a few scattered pools of limited extent in the western part of the latter State.

The *Illinois field*, including the principal oil-producing area in the southeastern part of Illinois and scattered pools in the south-central and western parts of the State.

The *Mid-Continent field*, including all areas of petroleum production in Kansas and Oklahoma irrespective of the character or grade of oil produced.

The *North Texas field*, embracing a number of detached pools in Wichita, Clay, Shackelford, Palo Pinto, Navarro, and Williamson counties in the north and east central parts of Texas.

The *Northwest Louisiana field*, including areas of oil production in Caddo, De Soto, Sabine, and Red River parishes in the northwestern part of Louisiana, together with adjoining portions of Harrison and Marion counties, Texas.

The *Gulf field*, embracing a large number of oil pools associated with salt domes in southeastern Texas and southern Louisiana.

The *Colorado*, *Wyoming*, and *California* fields include all areas of oil production occurring, respectively, in the States named.

Small quantities of oil are or have been produced in Missouri, Michigan, New Mexico, Utah, Montana, Washington, and Alaska.

The marketed production of petroleum from each of these ten fields is shown in the following tables, by years from 1900 to 1914, inclusive, together with the average yearly price of oil at the wells, with estimates of production for 1915, and average daily quotations for the principal grade of oil produced in each field.

Crude petroleum production and prices by fields.

APPALACHIAN FIELD.

Year.	Quantity.	Yearly average price per barrel.	Year.	Quantity.	Yearly average price per barrel.
1900	36,295,433	$1.353	1908	24,945,517	$1.780
1901	33,618,171	1.210	1909	26,535,844	1.646
1902	32,018,787	1.238	1910	26,892,579	1.336
1903	31,558,248	1.590	1911	23,749,832	1.308
1904	31,408,567	1.628	1912	26,338,516	1.626
1905	29,366,960	1.394	1913	25,921,785	2.458
1906	27,741,472	1.598	1914	24,101,048	1.877
1907	25,342,137	1.745	1915	23,650,000	1.56

LIMA-INDIANA FIELD.

Year.	Quantity.	Yearly average price per barrel.	Year.	Quantity.	Yearly average price per barrel.
1900	21,758,750	$0.982	1908	10,032,305	$1.003
1901	21,933,379	.854	1909	8,211,443	.907
1902	23,358,626	.890	1910	7,253,861	.793
1903	24,080,264	1.155	1911	6,231,164	.821
1904	24,689,184	1.092	1912	[1] 4,925,906	.962
1905	22,294,171	.873	1913	4,773,138	1.380
1906	17,554,661	.907	1914	5,062,543	1.182
1907	13,121,094	.912	1915	4,300,000	0.93

[1] Includes Michigan.

Crude petroleum production and prices by fields—Continued.

ILLINOIS FIELD.

Year.	Quantity.	Yearly average price per barrel.	Year.	Quantity.	Yearly average price per barrel.
1900	200	$5.000	1908	33,686,238	$0.672
1901	250	5.000	1909	30,898,339	.640
1902	200	5.000	1910	33,143,362	.598
1903	....	....	1911	31,317,038	.630
1904	....	....	1912	28,601,308	.851
1905	181,084	.644	1913	23,893,899	1.296
1906	4,397,050	.745	1914	21,919,749	1.160
1907	24,281,973	.677	1915	18,500,000	.990

MID-CONTINENT FIELD.

1900	81,186	$0.916	1908	47,600,546	$0.387
1901	189,151	.857	1909	49,122,982	.364
1902	368,849	.882	1910	53,157,386	.383
1903	1,071,125	1.055	1911	57,348,456	.472
1904	5,617,527	.969	1912	53,019,867	.674
1905	12,013,495	.545	1913	65,954,413	.937
1906	21,718,648	.443	1914	76,735,309	.778
1907	45,933,649	.402	1915	106,500,000	.610

NORTH TEXAS FIELD.

1900	836,039	$1.043	1908	723,264	$0.662
1901	800,545	.769	1909	681,940	.577
1902	617,871	.681	1910	969,403	.521
1903	501,960	1.026	1911	2,251,193	.539
1904	569,102	.724	1912	5,275,529	.779
1905	520,282	.695	1913	9,184,252	.992
1906	1,117,905	.662	1914	9,451,622	.828
1907	912,618	.791	1915	8,000,000	.630

NORTHWEST LOUISIANA FIELD.

1906	3,358	$0.650	1911	6,995,828	$0.522
1907	50,000	.277	1912	7,177,949	.755
1908	499,937	.428	1913	9,781,560	1.008
1909	1,028,818	.533	1914	11,808,469	.949
1910	5,090,793	.450	1915	15,500,000	.650

GULF FIELD.

1901	3,593,113	$0.175	1909	10,888,240	$0.723
1902	18,014,404	.209	1910	9,680,465	.763
1903	18,371,383	.411	1911	10,999,878	.669
1904	24,631,269	.357	1912	8,545,018	.742
1905	36,526,323	.240	1913	8,542,494	.936
1906	20,524,162	.457	1914	13,117,528	.674
1907	16,360,299	.837	1915	21,000,000	.450
1908	15,772,137	.603			

COLORADO FIELD.

1900	317,385	$1.019	1908	379,653	$0.913
1901	460,520	1.000	1909	310,861	1.023
1902	396,901	1.220	1910	239,794	1.015
1903	483,925	.892	1911	226,926	1.006
1904	501,763	1.152	1912	206,052	.973
1905	376,238	.897	1913	188,799	.926
1906	327,582	.802	1914	222,773	.902
1907	331,851	.822	1915	200,000	[1].900

[1] Estimated.

Crude petroleum production and prices by fields—Continued.

WYOMING FIELD.

Year.	Quantity.	Yearly average price per barrel.	Year.	Quantity.	Yearly average price per barrel.
1900	5,450	$7.000	1908	[2] 17,775	$1.370
1901	5,400	7.000	1909	[2] 20,056	1.718
1902	6,253	7.000	1910	[2] 115,430	.810
1903	8,960	7.000	1911	[2] 186,695	.664
1904	11,542	7.000	1912	1,572,306	.697
1905	8,454	6.100	1913	2,406,522	.498
1906	[1] 7,000	7.000	1914	3,560,375	.472
1907	[2] 9,339	2.343	1915	4,200,000	[1] .460

CALIFORNIA FIELD.

Year.	Quantity.	Yearly average price per barrel.	Year.	Quantity.	Yearly average price per barrel.
1900	4,324,484	$0.943	1908	44,854,737	$0.523
1901	8,786,330	.566	1909	55,471,601	.554
1902	13,984,268	.348	1910	73,010,560	.490
1903	24,382,472	.303	1911	81,134,391	.477
1904	29,649,434	.279	1912	87,272,593	.464
1905	33,427,473	.245	1913	97,788,525	.467
1906	33,098,598	.289	1914	99,775,327	.483
1907	39,748,375	.370	1915	89,500,000	.510

MISSOURI, ETC., FIELDS.

Year.	Quantity.	Yearly average price per barrel.	Year.	Quantity.	Yearly average price per barrel.
1900	[3] 1,602	$0.735	1908	[3] 15,246	$1.466
1901	[3] 2,335	1.114	1909	[3] 5,750	1.362
1902	[3] 757	1.408	1910	[3] 3,615	1.326
1903	[3] 3,000	1.550	1911	[3] 7,995	1.600
1904	[3] 2,572	1.354	1912	(4)	....
1905	[3] 3,100	1.071	1913	[5] 10,843	1.777
1906	[3] 3,500	1.397	1914	[6] 7,792	1.634
1907	[3] 4,000	1.625	1915	50,000	(7)

[1] Estimated.

[2] Includes Utah.

[3] Includes Michigan.

[4] No production for Missouri; Michigan included in Lima-Indiana.

[5] Includes Alaska, Michigan, and New Mexico.

[6] Includes Alaska and Michigan.

[7] Not available.

The petroleum produced in these major fields differs in physical and chemical character, and the types of petroleum found in the different districts of a single field may show wide variations. Therefore purchasing agencies classify the output of each field according to grade and quote prices thereon. The average yearly prices recorded in the foregoing table are the weighted average of current quotations for all types of oil marketed from the field during the year specified. Hence the table gives little indication of the range in prices affecting the oil output of the different districts of that field over the same period. The prices quoted for the various grades of oil produced within the ten fields will be given in tables which follow.

The oil produced in the Appalachian field is commonly marketed under a classification involving eight grades, viz, Pennsylvania and Tiona, Mercer Black, Corning, New Castle, Wooster, Cabell, Somerset, and Ragland.

Pennsylvania and Tiona grade includes all the oil produced in New York and the bulk of that produced in the other States of the Appalachian field exclusive of Kentucky. Mercer Black applies to a heavy-gravity, dark-colored crude oil produced in Mercer County, Pa.; New Castle to a somewhat similar type of oil produced near New Castle, Monroe County, Ohio; Corning applies to a type of

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SOMERSET GRADE (KENTUCKY).

Year.	Highest price.	Lowest price.	Year.	Highest price.	Lowest price.
1900	$1.05	$0.69	1908	$1.00	$1.00
1901	.89		1909	1.00	.72
1902			1910	.72	.72
1903			1911	.79	.72
1904	1.30	.91	1912	1.15	.79
1905	.91	.75	1913	1.35	1.15
1906	.91	.85	1914	1.35	.85
1907	1.20	.85	1915	1.63	.80

RAGLAND GRADE (KENTUCKY).

Year.	Highest price.	Lowest price.	Year.	Highest price.	Lowest price.
1904	$0.66	$0.58	1910	$0.50	$0.45
1905	.58	.49	1911	.48	.45
1906	.62	.49	1912	.65	.48
1907	.75	.55	1913	.70	.65
1908	.75	.65	1914	.70	.65
1909	.65	.50	1915	.75	.63

The oil produced in the Lima-Indiana field is commonly marketed under a classification involving four grades, viz, North Lima, South Lima, Indiana, and Princeton. North and South Lima grades include the oils of slightly different characteristics produced in the northwestern part of Ohio. Indiana grade includes all petroleum produced in the State of that name with the exception of that produced in the Princeton pool, Gibson County, which is similar in character to Illinois oil and receives a separate classification.

The following tables show the maximum and minimum prices quoted for crude petroleum produced in the Lima-Indiana field each year since 1900:

Year.	North Lima grade.		South Lima grade.		Indiana grade.		Princeton grade (Indiana).	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
1900	$1.28	$1.01	$1.21	$0.96	$1.21	$0.96		
1901	.94	.79	.89	.74	.89	.74		
1902								
1903	1.38	1.11	1.33	1.06	1.33	1.06		
1904	1.36	1.00	1.31	.95	1.31	.95		
1905	1.01	.86	1.96	.81	.96	.81		
1906	.98	.90	.93	.85	.93	.85		
1907	.94	.90	.89	.87	.89	.87		
1908	1.04	.94	.99	.89	.99	.89	$0.68	$0.68
1909	1.04	.84	.99	.79	.99	.79	.68	.60
1910	.84	.82	.79	.77	.79	.77	.60	.60
1911	.84	.82	.79	.77	.79	.77	.67	.60
1912	1.25	.84	1.20	.79	1.20	.79	1.05	.67
1913	1.49	1.25	1.44	1.20	1.44	1.20	1.45	1.05
1914	1.49	.93	1.44	.88	1.44	.88	1.45	.89
1915	1.33	.88	1.33	.83	1.18	.78	1.47	.84

Illinois grade includes all the petroleum produced in Illinois with the exception of that produced in McDonough County in the northwestern part of the State which is classed as Plymouth grade.

The following table shows the highest and lowest market quotations for crude oil produced in the Illinois field:

ILLINOIS GRADE.

Year.	Highest price.	Lowest price.	Year.	Highest price.	Lowest price.
1905	$0.70	$0.60	1911	[1] $0.67	[2] $0.52
1906	.83	.64	1912	[1] 1.08	[2] .57
1907	.68	.64	1913	1.45	1.05
1908	[1] .68	[2] .60	1914	1.45	.89
1909	[1] .68	[2] .52	1915	1.47	.84
1910	[1] .60	[2] .52			

PLYMOUTH GRADE.

Year.	Highest. price.	Lowest price.
1915	$1.33	$0.58

[1] Above 30° B. [2] Below 30° B.

Mid-Continent oils, though varying considerably in character from pool to pool, are now classed as Kansas and Oklahoma grade with the exception of that produced in the Healdton district, Oklahoma, which, because of its sulphur and its low content of light gravity product, is classed separately as Healdton grade.

The following table shows the highest and lowest quotations for petroleum produced in the Mid-Continent field:

KANSAS AND OKLAHOMA GRADE.

Year.	Highest.	Lowest	Year.	Highest.	Lowest.
1903	[1] $1.38	[2] $0.60	1910	[6] .42	[7] .28
1904	[1] 1.36	[2] .46	1911	.50	.44
1905	[3] .80	[4] .25	1912	.83	.50
1906	[3] .52	[5] .26	1913	1.03	.83
1907	[3] .41	[5] .26	1914	1.05	.55
1908	[3] .41	[5] .28	1915	1.20	.40
1909	[6] .41	[7] .28			

HEALDTON GRADE (OKLAHOMA).

1914	$1.03	$0.50	1915	$0.60	$0.30

[1] Light.
[2] Heavy.
[3] 32° B. and above.
[4] 29½° to 30° B.
[5] Below 28° B.
[6] 30° B. and above.
[7] Below 30° B.

Petroleum produced in the fields of northern Texas is classed as Electra grade from the fields in Wichita County, Moran grade from Shackelford County, Henrietta grade from Clay County, Strawn grade from Palo Pinto County, Thrall grade from Williamson County, and Corsicana light or Corsicana heavy (Powell) from Navarro County.

The following table shows the highest and lowest quotations for petroleum in the various pools of the North Texas field:

PRICES OF NORTH TEXAS OILS

Year.	Electra.		Henrietta.		Corsicana light.		Corsicana heavy (Powell).		Thrall.		Strawn.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
1900					$1.11	$0.81						
1901					.98	.66	$0.60	$0.20				
1902					[1] 1.72		[1] .21					
1903					1.82	1.08	.60	.35				
1904			[1] $0.475		1.27	.70	.55	.40				
1905			.50	$0.45	.91	.81	.50	.50				
1906			.65	.65	1.00	.89	.60	.52				
1907			.95	.93	1.02	1.00	.70	.65				
1908			.93	.45	1.00	.70	.70	.45				
1909			.53	.48	.70	.70	.53	.48				
1910			.55	.53	.70	.55	.55	.50				
1911	$0.55	$0.55	.55	.55	.58	.58	.50	.50				
1912	.88	.50	.88	.50	.83	.50	.70	.50				
1913	1.05	.88	1.05	.88	1.05	.83	.80	.70				
1914	1.05	.60	1.05	.60	1.05	.60	.80	.50				
1915	1.20	.45	1.20	.45	1.20	.45	.60	.40	$1.20	$0.65	$1.05	$0.65

[1] Yearly average price.

Petroleum produced in the fields of northwest Louisiana is classed as Caddo light or heavy, De Soto, and Crichton grades, depending on its source, whether from Caddo, De Soto, or Red River parishes.

The following table shows the highest and lowest average monthly quotations on petroleum of Caddo grade since 1907:

Year.	Highest.	Lowest.	Year.	Highest.	Lowest.
1907	[1] $0.85	[2] $0.63	1912	[1] $0.91	[2] $0.40
1908	[1] .73½	[2] .30	1913	[1] 1.05	[2] .60
1909	[1] .60	[2] .40	1914	[1] 1.05	[2] .45
1910	[1] .60	[2] .28	1915	[3] 1.20	[2] .35
1911	[1] .62	[2] .40			

Year.	De Soto grade.		Crichton grade.	
	Highest.	Lowest.	Highest.	Lowest.
1913				
1914	[4] $0.952			
1915	1.10	$0.50	$0.85	$0.40

[1] Caddo light. [2] Caddo heavy. [3] 38° B. or above. [4] Yearly average price.

Petroleum produced in the various pools of the Gulf Coastal plain varies somewhat in character with the pool, though all the oil produced in this major field is characterized by an asphalt base, by the presence of sulphur, and by a low yield of gasoline by ordinary fractionation methods of refining. Prices of oil produced in this major field vary from pool to pool, as shown in the following tables;

PRICES OF GULF-COAST OILS.

Year.	Spindletop (Texas).		Sour Lake (Texas).		Jennings (Louisiana).		Welch (Louisiana).		Batson (Texas).	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
1900	......	......	......	......	......	......	......	......	......	......
1901	[1] $0.175	......	......	......	......	......	......	......	......	......
1902	[1].2045	......	[1] $0.3215	......	[1] $0.344	......	......	......	......	......
1903	......	......	.60	$0.15	[1].437	......	[1] $1.00	......	[1] $0.25	......
1904	[2].48	$0.268	[2].465	.28	[2].57	$0.18	[1].681	......	[2].46	$0.29
1905	.52	.30	.36	.20	[2].27	.12	[1].75	......	[2].41	.20
1906	.75	.51	.75	.40	[2].65	.234	[1].726	......	.75	.30
1907	.98	.70	[2].97	.655	1.08	.62	[1].742	......	.95	.72
1908	[2].791	.4076	92	.43	[2].792	.43	[1].750	......	.84	.40
1909	.82	.58	.80	.54	.86	.60	[1].760	......	.77	.53
1910	.83	.77	.84	.72	.87	.65	[1].841	......	.80	.72
1911	.79	.70	.80	.65	.78	.55	[1].862	......	.73	.65
1912	.80	.70	.75	.65	[2] .92	.625	[1].843	......	.75	.65
1913	1.06	.84	[2] 1.08	.875	1.02	.78	[1].859	......	1.09	.75
1914	1.04	.40	1.06	.40	1.00	.45	[1].946	......	1.00	.40
1915	.60	.40	.65	.50	.45	.40	(3)	......	.50	.40

Year.	Saratoga (Texas).		Humble (Texas).		Dayton (Texas).		Vinton (Louisiana).		Edgerly (Louisiana).	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
1900	......	......	......	......	......	......	......	......	......	......
1901	......	......	......	......	......	......	......	......	......	......
1902	......	......	......	......	......	......	......	......	......	......
1903	......	......	......	......	......	......	......	......	......	......
1904	[2] $0.38	$0.20	......	......	......	......	......	......	......	......
1905	[2].35	.22	$0.20	$0.15	$0.34	$0.19	......	......	......	......
1906	.75	.29	.75	.34	[2].434	......	......	......	......	......
1907	.94	.66	.99	.62	.86	.65	......	......	......	......
1908	[2].887	.40	[2].913	.43	.61	.41	......	......	......	......
1909	.80	.53	.80	.54	.72	.50	......	......	......	......
1910	.84	.70	.80	.72	.72	.70	[1] $0.50	......	......	......
1911	.75	.65	.78	.65	.70	.60	.53	$0.39	......	......
1912	.75	.65	.75	.65	.70	.67	.75	.50	......	......
1913	[2] 1.00	.875	[2] 1.00	.875	.80	.75	.90	.73	......	......
1914	1.00	.40	1.00	.40	.75	.40	1.00	.40	$0.90	$0.40
1915	.60	.40	.50	.30	.50	.30	.60	.30	(3)	......

[1] Yearly average price. [2] Monthly average price. [3] Data not available.

Monthly prices of crude petroleum in the Colorado and Wyoming fields are not available in the department, but in view of the fact that such variation is slight the average yearly prices shown with the statistics of marketed production in a foregoing table furnish a good index to the annual fluctuations.

Petroleum produced in California is all of asphalt base and is now classed on the basis of specific gravity expressed in degrees Baumé.

No consistent classification has been followed in past years, and a general summary of price variations is not practicable.

The following table shows the quotations for California petroleum posted by the Standard Oil Co. of California on December 28, 1915:

San Joaquin Valley fields:	
14° B. to and including 17.9° B	$0.43
18° B. to and including 18.9° B	.44
For each increase in gravity above 18° B., 1 cent per barrel is added.	
Ventura County pools:	
25° B. to and including 25.9° B	.67
For each increase of 1° B. above 25° B., 1 cent per barrel is added.	
Whittier Fullerton district:	
16° B. to and including 17.9° B	.48
18° B. to and including 18.9° B	.49
For each increase of 1° B. above 18° B., 1 cent per barrel is added.	

These quotations do not vary greatly from month to month or from year to year.

In addition to the prices quoted for oil in each of the major fields, bonuses ranging from 2 to 50 cents a barrel are paid by various purchasing agencies and refiners for types of crude oil suited to their particular needs.

The following table summarizes in round numbers the total marketed production of crude petroleum in the United States from 1900 to 1915, inclusive, and shows for comparison the crude oil production of the entire world during that period, in barrels of 42 gallons:

Year.	United States.	Entire world.	Year.	United States.	Entire world.
1900	63,600,000	149,100,000	1908	178,500,000	285,100,000
1901	69,400,000	167,400,000	1909	183,200,000	298,400,000
1902	88,800,000	182,000,000	1910	209,600,000	327,600,000
1903	100,500,000	194,800,000	1911	220,400,000	345,700,000
1904	117,100,000	218,300,000	1912	222,900,000	352,500,000
1905	134,700,000	215,400,000	1913	248,400,000	384,700,000
1906	126,500,000	214,000,000	1914	265,800,000	400,500,000
1907	166,100,000	264,900,000	1915	[1] 267,400,000	(2)

[1] Estimated.

(2) No figures available.

5. What fields, and to what extent, are becoming exhausted?

Considering only those portions of the 10 fields already described which have been demonstrated by drilling to contain oil, the best estimates from available information indicate for each of the fields the percentage of exhaustion shown in the following table:

Field.	Present gasoline factor (per cent).	Production including 1915 (millions of barrels).	Estimated percentage of exhaustion.
Appalachian	25	1,150	74
Lima-Indiana	12	438	93
Illinois	18	251	60
Mid-Continent	18	617	50
North Texas	20	44	41
Northwest Louisiana	20	58	47
Gulf Coast	3	236	79
Colorado	20	11	79
Wyoming	20	12	5
California	2½	835	34

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Total........

In addition to the major fields considered in the foregoing list, the Territory of Alaska and the States of Arizona, Utah, New Mexico, Michigan, Arkansas, Alabama, Nebraska, Missouri, Washington, and Mississippi contain areas of potential oil production which may add 75,000,000 barrels or more to the above total.

The possibilities of finding oil in Oregon, North Dakota, South Dakota, and in the coastal regions of the Middle and South Atlantic States, which have not been included in the above estimates, should not be overlooked.

The possibilities of gasoline production might be calculated by applying the present gasoline factor given for each field in the table in the answer to questions 3 and 4, but on the one hand this gasoline content has been known to decrease materially even during the life of a pool and on the other hand it is expected that the gasoline factor will be increased largely as stated in the answer to question 8.

No estimates are warranted for possibilities outside the United States.

8. *What new method or methods have been evolved to increase the percentage of gasoline produced from the crude oil, or to cheapen the cost of production in any way?*

(*a*) The extraction of gasoline from natural gas by compression is a new method. The production of gasoline from this source in five years is as follows:

	Barrels.
1911	177,000
1912	286,000
1913	573,000
1914	1,016,000
1915	1,500,000
Total	3,552,000

This gasoline may be blended with heavier distillates from petroleum.

(*b*) The usual refinery practice is to produce a number of gasolines of different gravities, such as 74°, 70°, 68°, and so on down to 60° gravity. If refinerers, instead of making gasoline of different gravities, would blend the higher grades with lower distillates, making a single grade of 60° gravity, this would increase the gasoline yield 3 to 4 per cent, or more than 1,000,000 barrels per annum.

(*c*) By improved design of carburetors and internal combustion engines, it is possible to use heavier oils than have heretofore been considered practicable. Six or seven years ago gasoline of at least 70° gravity was desired, while to-day a gravity of 60° is quite satisfactory. This in part explains why ten years ago only from 10 to 12 per cent of gasoline was extracted from Pennsylvania crudes, whereas to-day the same crude yields twice that amount; likewise Indiana and Oklahoma crudes are yielding double the porportion of gasoline to-day that they yielded ten years ago.

(*d*) The Burton cracking process for producing gasoline (motor spirits) from certain low grade petroleum distillates is a process patented and owned by the Standard Oil Co. The production from it is in excess of 3,000,000 barrels per annum. This gasoline output is equivalent to the ordinary gasoline recovery from 18,000,000 barrels of crude oil containing 17 per cent of gasoline, or more than 10 per cent of the total production of crude for the past year, exclusive of California. Kerosene, heavy residuum oils, and asphaltic crudes are not at present used in this process.

(*e*) The Rittman cracking process for producing gasoline (motor spirits) from petroleum distillates was brought out by the Bureau of Mines in 1915. Application for patent is pending in the Patent Office. At the present time seven refineries in six States are installing plants to use this process, which not only increases the yield of gasoline but utilizes for this purpose crude oil, kerosene, or any other low-grade distillate.

(*f*) There are other cracking processes for making gasoline from inferior oils, such as kerosene, fuel oil, residuum, etc., and numerous patents have been issued. These other processes are at the present time not as promising as are the Burton or Rittman processes, but their further development may materially increase the future production of gasoline.

9. To what new uses have gasoline and petroleum or coal oil been applied during the said period?

The new uses of gasoline and kerosene (coal oil) are of comparatively minor importance. The consumption of gasoline has been due to the tremendous growth of old uses.

The principal uses of gasoline to-day are as follows:

(*a*) Automobiles, motor boats, motor cycles, and air craft.
(*b*) Stationary internal-combustion engines.
(*c*) Tractors and other portable units.
(*d*) General industrial and household uses.

None of these uses have yet reached a stage where their future can be accurately forecasted.

The increase in the use of heavier fuel oils for steam purposes on railroads, in the naval and merchant marine service, and in industrial plants, has developed on a large scale during this period. Between 1906 and 1912 the consumption of fuel oil by railroads alone in the United States increased more than 100 per cent. Since the latter year this consumption has, however, remained practically stationary at about 31,000,000 barrels annually.

10. So far as the records of his department will disclose, what has been the production and consumption of gasoline in the world outside of the United States each year during said period?

No authentic figures are of record in this department regarding the world's production and consumption of gasoline.

The relative importance of the domestic production of gasoline may in a general way be inferred from the facts set forth in the table under 3 and 4, which gives the production of crude petroleum for both the United States and the entire world, and also in the table of gasoline exports under 2.

11. To what extent have the war conditions in Europe influenced the production and consumption of gasoline?

An indication of the effect of the war on our production of gasoline is shown by the increased exports of gasoline (naphtha and lighter products). The exports for 1914 exceeded those of 1913 by 500,000 barrels and the exports for 1915 exceeded those of 1914 by 1,500,000 barrels.

A comparison of exports by months is given in the table under 12 (*b*).

12. What cause, if any, can be given for the sudden, extraordinary rise in the retail price of gasoline?

(*a*) Increased consumption of gasoline within the United States. Various trade journals estimate that the consumption of gasoline in the United States during 1915 was 25 per cent greater than in 1914, and that there will be a like increase in 1916.

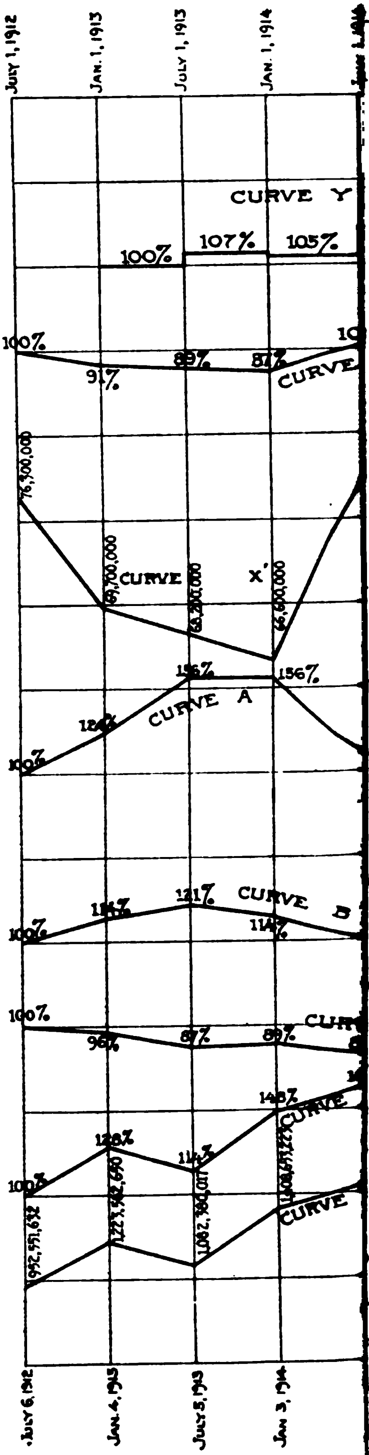
(*b*) Increase in exports. The following table shows the combined gasoline and naphtha exports by months for the years 1913–1915:

Month.	1913	1914	1915
	Barrels.	*Barrels.*	*Barrels.*
January	160,000	150,000	325,000
February	325,000	280,000	550,000
March	350,000	320,000	525,000
April	550,000	550,000	480,000
May	450,000	540,000	600,000
June	320,000	430,000	680,000
July	380,000	650,000	550,000
August	390,000	270,000	700,000
September	490,000	550,000	490,000
October	510,000	560,000	430,000
November	280,000	400,000	640,000
December	250,000	300,000	530,000
Total	4,455,000	5,000,000	6,500,000

(*c*) The depletion of gasoline stocks due to increased domestic and export demands. On January 1, 1915, refiners had stocks of gasoline in storage amounting to at least 2,000,000 barrels. Inquiry to-day indicates that there is little gasoline in storage.

(*d*) Decreased production of crude containing a large percentage of gasoline, as in the Cushing pool of Oklahoma, the daily production of which declined from more than 300,000 barrels in April, 1915, to less than 100,000 barrels in January, 1916. The decline of the Cushing pool was partially compensated for by an increased production of crude from other pools, the gasoline content of which production, however, was from 5 to 7 per cent less than that of the Cushing crude.

The stocks of Cushing crude, while from 10,000,000 to 15,000,000 barrels larger at the end of 1915 than at the beginning of that year, reached their maximum in July. This surplus is now being drawn on to supply the shortage represented by the difference between daily production and existing transportation and refining capacity, and thus until exhausted this surplus tends to steady the oil market. These stocks, however, are controlled by the stronger companies, and have been withdrawn from the open market. Thus, while there is a market shortage of Cushing crude, which is directly responsible for



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some of the independent refiners paying a premium of from 20 to 50 cents a barrel above the quoted market price, other companies have not exhausted their 1915 surplus of Cushing crude. Since these larger companies have in fact larger stocks than a year ago, it follows that with them the shortage of gasoline-rich crude is at most only threatened and to the extent that these companies are using their 1915 surplus, the threatened shortage is not yet a factor in increasing the cost of gasoline production.

(*e*) Increase in the price of crude oil. For study and comparison the price of Pennsylvania grade crude at the well and the price of gasoline in steel barrels in New York are taken as typical and fair indexes of conditions throughout the country, perhaps excepting California. For the last three and one-half years (July 1, 1912, to Jan. 1, 1916), considered by six months periods, the price of crude and the price of gasoline have risen and fallen at the same time, but not always in the same amount. Until the first of last July the percentage of fluctuation of the price of crude was considerably greater than that of gasoline, but since that date the percentage rise in gasoline price has been slightly more rapid than that of crude. (See Pl. I, curves A and B.) This latter relation is more clearly shown by considering the prices month by month for the year 1915. During the month of January the price of gasoline dropped, while the price of crude was rising; during March and April gasoline remained stationary while crude was falling; during July gasoline remained stationary while crude was rising rapidly; and since August 1, gasoline has gone up relatively faster than crude, its rapid rise being uninterrupted by the stationary price of crude during November. These facts are shown graphically on Plates I and II, curves A and B, and are stated in the following table:

	Gasoline prices per gallon.	Crude oil prices per barrel.
1915.	*Cents.*	
Jan. 1	13	$1.45
Feb. 1	12	1.50
Mar. 1	12	1.50
Apr. 1	12	1.40
May 1	12	1.35
June 1	12	1.35
July 1	12	1.35
Aug. 1	12	1.60
1915.	*Cents.*	
Sept. 1	14	$1.70
Oct. 1	16	1.80
Nov. 1	17	2.00
Dec. 1	19	2.00
1916.		
Jan. 1	21	2.25

(*f*) Financial influences. The recent rapid increases in the prices of crude oil and gasoline have been accompanied by rapid increases in the market quotations of oil company shares. The market values of the capital stocks of 38 corporations, of which 35 are in the Standard Oil group and 3 are typical large independent companies, have increased remarkably in the last six months. (See Pl. II, curves D and E.) The stocks of other oil companies probably show a similar rise, but the quotations are not at hand. The 38 companies selected are believed to represent all phases of the oil industry. These rapid increases might be ascribed to the general condition of prosperity and the general upward trend of the stock market but for the fact that during the last quarter of 1915 the oil company stocks did not rise and fall with the market. The weekly curve of "The

Annalist" showing the course of the stock market as indicated by the average price of 50 stocks—25 railroad and 25 industrial—shows that the market was rising rapidly during October, while the oil companies either remained stationary or fell off slightly. More striking, however, is the fact that during November, when the stock market was falling, the oil stocks were rising rapidly, and that during December the rise of oil stocks was many times more rapid than that of the general market. (See Pl. II, curves C, D, and E.) It should be noted also that the stocks of the three typical large independent companies have risen much more rapidly than those of the Standard group. (See Pl. II, curves D and E.) Other indications that the rise of oil stocks may be ascribed in part at least to increased profits are found in the following quotations, the first and second being from "The Commercial and Financial Chronicle" of New York for January 22, 1916:

> *Standard Oil of California—50 per cent stock dividend.*—A stock dividend of 50 per cent has been declared on the $49,686,655 stock, payable April 15 to holders of record March 4, along with the regular quarterly 2½ per cent cash distribution payable March 15 to holders of record February 9. (V. 100, p. 896.)
>
> *Imperial Oil Co.* (*Ltd.*), *Canada—Stock dividend.*—This company, which on November 15, 1915, filed with the secretary of state of Canada a certificate of increase of authorized capital stock from $15,000,000 ($11,000,000 outstanding) to $50,000,000 (par $100), has this week distributed a stock dividend of 100 per cent, thus increasing the outstanding stock to $22,000,000. The Standard Oil Co. of New Jersey is said to own an 80 per cent interest.
>
> The Financial Times of Montreal on November 27 said:
>
> The Imperial Oil Co. is one of the most progressive and promising of the subsidiaries of the Standard Oil Co. of New Jersey. In 1907 the company's outstanding capital stock amounted to only $1,000,000. Practically all additional sums up to $11,000,000 are said to have been for extensions, etc.)

The third quotation is from Petroleum Age of New York for December, 1915.

> OIL AND GAS SECURITIES.
>
> Convincing proof of the amazing recovery within the oil industry in the last half of 1915 is furnished by the dividend declarations of the Standard Oil group for the last quarter, which reached the astonishing total of $21,788,636, which is the record for any quarter since the dissolution, with the exception of the first quarter of 1913, when Standard Oil Co. of New Jersey, made its famous 40 per cent cash distribution. True it is that of this sum, $4,890,000, representing the 15 per cent dividend of Illinois Pipe Line, 5 per cent by Prairie Pipe Line, and 3 per cent by Prairie Oil & Gas Co., will not be payable until January 15, but all of them are payable to December shareholders and represent distributions from 1915 profits.
>
> Including these sums, the total of regular and extra cash dividends since the dissolution in December, 1911, reaches the impressive total of $290,666,083, to which must be added stock dividends at par totaling $169,100,000. Taking into account the present market value of the distributed stock, the cash value of all distributions in the last four years by this group is in excess of half a billion dollars.
>
> The market effect of this enormous earning capacity is strikingly reflected in the steady appreciation in value of the old Standard Oil Co. of New Jersey stock "all on," which has risen from less than 650 at the time of the dissolution in December, 1911, to a new high record of 1770 during the current month. As the variation of price in this comprehensive security reflects the general trend of the oil securities markets, the accompanying "graph" will illustrate the course of the industry in the past four years.

That a cause for the increased price of gasoline and crude oil other than any present shortage of crude must be sought is shown by the reports of pipe-line company storage in the Appalachian, Lima-Indiana, Illinois, and Mid-Continent fields. During the months of August, September, and October, while the price of gasoline was rising rapidly the amount of oil in pipe-line storage was also increasing. (See Pl. II, curves X and B.) In other words, it would appear that during these months when the rapid decline of a remarkably productive pool foreshadowed a shortage of high-grade crude, the prospective shortage was promptly discounted by higher prices, although the amount of oil available to the larger transporting and refining companies was increasing. The cost of storage, including evaporation losses, must not be overlooked, but this cost by no means equaled the increase in market value of the crude during the period. The accumulated stocks were reduced somewhat during November and December, following the tendency indicated by the record of previous years. Thus the 18-month period, July, 1912, to January, 1914, was marked by an upward trend in the price of crude and by withdrawals from storage, which were more than replaced in the succeeding 18-month period of low prices. (See Pl. I, curves X and A.)

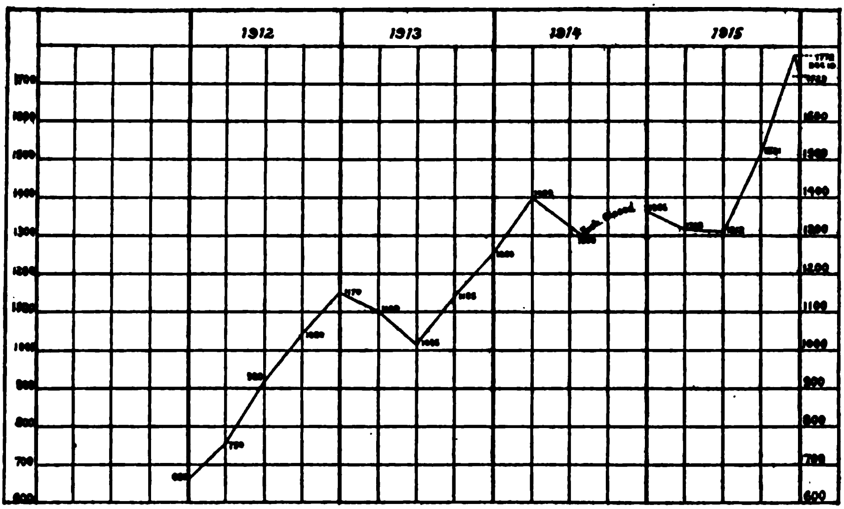

DIAGRAM SHOWING MARKET RANGE OF OLD STANDARD OIL CO. OF NEW JERSEY "ALL ON" SINCE THE DISSOLUTION

Notwithstanding the reduction of pipe-line stocks during November and December, at the end of the year the total stocks for the United States, both pipe-line and field storage, are estimated at more than 200,000,000 barrels. Thus, it is believed that the net increase in visible reserves of crude oil for the year was at least 45,000,000 barrels; that is to say, more than 15 per cent of the total production for 1915 went into storage. With the owners of these stocks, a shortage of crude must be considered only prospective.

RÉSUMÉ.

The extent to which the rapid and extraordinary rise in the price of gasoline can be traced to causes related to supply and demand has been indicated above. A conclusion justified by a review of the year's record in the oil industry is that the selling price of gasoline is fairly responsive to the supply and demand for gasoline, but is less directly related to the actual supply of crude oil. Attention has also been directed to the possibility of other contributing factors, with the result that the evidence at least suggests that increasing profits to the larger refining corporations have accompanied the upward trend of gasoline prices.

The obvious fact is that the refining and transporting companies that are strongest in business foresight and financial backing take advantage of both the falling and the rising markets in crude oil to strengthen an already strong position by purchasing both stocks of crude and producing properties. Under these conditions a market shortage of crude may develop which is not wholly warranted by facts of actual production, yet it no less surely leads to higher prices in both crude and refined products. This furnishes the opportunity for the well-supplied refiners to sell at the higher price gasoline which is derived from crude oil purchased in a lower market.

The net result of this clearly indicated business policy is that the consumer of gasoline pays a price, which in the case of the companies controlling the larger stocks of crude oil is not necessarily determined by the price paid to the producer for the oil from which the gasoline is obtained. The smaller refiners on the contrary, less favored with transportation and storage facilities and ready capital, may be so dependent for crude upon the current market that their cost of gasoline production is directly related to the current price of crude if indeed they do not have to pay a premium whenever a shortage is threatened. This advantage of larger profits to the stronger companies is perhaps inherent in the competitive system and must be recognized in any analysis of costs and prices.

13. *To what extent has the interior combustion engines been responsible for the increased consumption of gasoline, and what has been the extent of the increase of such engine and their general uses during said period, with special reference to number and increase of stationary engines, farm traction engines, automobiles, and motor boats, etc.?*

Authorities agree that the automobile and other internal combustion engines are primarily responsible for the increased consumption of gasoline. The statement has been made by several well-informed engineers that the horsepower of gasoline internal combustion engines in the United States is more than twice that of all engines in the United States driven by steam. The following figures indicate this increase in number of automobiles used:

	Number in operation Jan. 1.[1]
1899	[2] 10,000
1905	85,000
1910	400,000
1911	600,000
1912	677,000
1913	1,010,483
1914	1,253,875
1915	1,754,570
1916	2,225,000
1917	[2] 3,000,000

NOTE.—Various authorities estimate that the average consumption per automobile equals from 10 to 14 barrels per annum. This figure has been checked against inspection figures of States inspecting all gasoline sold.

On July 1, 1915, there were approximately 300,000 motor boats in the United States.
On Jan. 1, 1915, there were approximately 45,000 motor trucks in the United States.
On Jan. 1, 1916, there were approximately 30,000 farm tractor engines in the United States.

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[1] Figures of National Automobile Chamber of Commerce, based on State registration.
[2] Estimated.

ums, and heavy crudes by present-day cracking processes, and no oil should be used for fuel that has not been so treated.

(*d*) Increasing the production of crude to furnish the necessary supplies of gasoline, but this is not to be recommended if it increases the output of distillates for which there is no market.

Looking to the future, benzol may be considered as a substitute for gasoline, and oil-shale as a substitute source of gasoline.

Benzol, a hydrocarbon not greatly different from gasoline, is recovered as a by-product in the manufacture of coke. At present benzol is not likely to find favor with automobile owners in the United States as a substitute for gasoline, although in general use in Europe. The objections made to it as a motor fuel are that it requires adjustments in the motor, and that the quantity of it available will be so limited as to preclude widespread distribution and ready availability at every cross-roads corner, which the gasoline user has come to expect.

The quantity of benzol produced in by-product coke ovens in the United States in 1915 was approximately 14,000,000 gallons, and at the present rate of production, and taking into account new plants under construction, the output in 1916 will be at least 22,000,000 gallons, or about 500,000 barrels. This quantity will be consumed in the manufacture of explosives, dyes, and chemicals such as carbolic acid, a type of demand, however, that is expected to be much smaller following the termination of the European war, which has resulted in the present high prices. Under normal conditions the price has been 20 cents or less a gallon.

The quantity of coal now made into coke is 60,000,000 to 70,000,000 tons annually and as under present practice the yield of benzol is 2 gallons from the ton of coal, the universal use of by-product ovens would increase the present production of benzol to over 3,000,000 barrels. The coal reserves available for the future production of benzol are enormous, but production of benzol as a substitute for gasoline can not be expected to draw on these reserves faster than the demand for coke and for by-products other than benzol justifies the coking or distillation of coal.

The oil shales in Colorado and Utah constitute an undeveloped reserve of petroleum, to which attention was directed by the Geological Survey in 1901. Field investigations of these deposits are being carried on by the survey to ascertain the distribution, richness, and quantity of these shales, and tests made by the Bureau of Mines to determine the most efficient methods of their utilization.

These oil-producing shales in northwestern Colorado have been examined with sufficient detail to warrant the estimate that there are 39 townships (1,400 square miles) underlain by an average thickness of 53 feet of shale in beds 3 feet or more in thickness, which, according to field tests, will on distillation yield an average of 25 gallons of crude oil per ton of shale. The crude oil thus obtained will give under ordinary refining practice approximately 9½ per cent gasoline, and doubtless much larger amounts by modern cracking processes. There is in northeastern Utah an oil-shale area approximately equal to that in Colorado, and it is estimated that the shale in this State will have equal thickness and quality, thus doubling the total possible yield. Oil shale beds generally thinner or less rich are present also in southwestern Wyoming, and similar shales are known in the Eastern States.

The net result of the examinations already made is that these oil-shale areas in Colorado and Utah constitute a latent petroleum reserve, whose possible yield is several times the total remaining supply of petroleum as estimated under the answer to question 7. The gasoline content of the petroleum that can be distilled from these shales can be conservatively stated in billions of barrels.

The development of this enormous reserve simply awaits the time when the price of gasoline or the demand for other distillation products warrants the utilization of this substitute source. This may happen in the near future. At all events these shales are likely to be drawn upon long before the exhaustion of the petroleum fields. Shales of no greater oil content have long been mined and distilled in Scotland.

64TH CONGRESS }
1st Session }

SENATE

{ DOCUMENT
{ No. 311

PREPAREDNESS FOR NATIONAL DEFENSE

AN ADDRESS

DELIVERED BEFORE THE SIXTEENTH ANNUAL MEETING OF THE
NATIONAL CIVIC FEDERATION ON JANUARY 18, 1916, AT
WASHINGTON, D. C., TOGETHER WITH A LETTER
WRITTEN ON THE SAME SUBJECT TO THE
NATIONAL SECURITY LEAGUE
DATED JANUARY 19, 1916

BY

SAMUEL GOMPERS
PRESIDENT OF AMERICAN FEDERATION OF LABOR

PRESENTED BY MR. CHAMBERLAIN
FEBRUARY 7, 1916.—Ordered to be printed

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

PREPAREDNESS FOR NATIONAL DEFI

By Samuel Gompers,

President American Federation of Labor.

For 17 months war such as has never been known in t man has been devouring life and consuming the handi Such a stupendous horror has compelled men to think principles underlying our institutions and the spirit th human progress and liberty.

Before the outbreak of the present war many believe war involving many nations was no longer possible; tha veloped ideals of justice and of humanity that would pr sibility of their taking the lives of fellow men, even in legitimate warfare. They hoped much—their ideals wer

With the declaration of war the men of each country r flags. Soon there were mobilized thousands of men fig flicting ideals. When it was necessary to decide whet posed to stand by and see another nation invade thei trample upon their national ideals, ruthlessly disr pledges given in treaties, they found that there were s higher value than peace. They found that there are dar more far-reaching than the dangers of war. They real better to fight and die for a cause than to maintain pe physical safety at the sacrifice of their manhood and of t ennoble life.

And yet it is not an unbeautiful theory that has been the shot and the smoke of the European war. Ther who held that an organized society was possible up the brotherhood of man, in which all had regard for others and would subordinate their selfish interests to t others. This ideal made paramount the sanctity of hu regarded war as a relic of barbarism possible only becau of justice had not been sufficiently developed. Wage e ally of all civilized countries proclaimed and indorsed t declared that they would use every means within th prevent war even to the extent of stopping all of the the nations through a general strike. There were n pacifists who could find no justification for war or the in international affairs.

And I, too, found this ideal attractive. In a speech n 1899, in Tremont Temple, Boston, I said:

> The organized wageworker learns from his craft associatio humanity and of the brotherhood of man, hence it is not s should believe in peace, not only nationally, but internationally.

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> It is often our custom to send organizers from one country to another for the purpose of showing to our fellows in other countries the value of our association in the labor movement. If international peace can not be secured by the intelligence of those in authority, then I look forward to the time when the workers will settle this question—by the dock laborers refusing to handle goods that are to be used to destroy their fellow men, and by the seamen of the world, united in one organization, while willing to risk their lives in conducting the commerce of nations, absolutely refusing to strike down their fellow men.

My belief that war was no longer possible was based upon what I desired rather than upon realities because I felt so keenly the brutality, the destruction, and the waste of war. It seemed to me that war and conditions of war cut through the veneer of civilization and disclosed the brute in man. The consequence and the purpose of war accustom man to treat human life lightly. They make men callous to human suffering and they idealize force. No one can hear of the atrocities, of the terrible carnage of the present war, of the destruction on the battlefields and on the high seas without a feeling of horror that civilized men can plan such methods, can use the skill of their minds and bodies and the wisdom of past generations to such terrible purpose. But what if these horrors done to the bodies of men shall prevent greater horrors to the minds—the souls of men?

The pacifists and those who hold to policies of nonresistance have failed as I had failed to understand and to evaluate that quality in the human race which makes men willing to risk their all for an ideal. Men worthy of the name will fight even for a "scrap of paper" when that paper represents ideals of human justice and freedom. The man who would not fight for such a scrap of paper is a poor craven who dares not assert his rights against the opposition and the demands of others. There is little progress made in the affairs of the world in which resistance of others is not involved. Not only must man have a keen sense of his own rights, but the will and the ability to maintain those rights with effective insistence. Resistance to injustice and tyranny and low ideals is inseparable from a virile fighting quality that has given purpose and force to ennobling causes to all nations.

Though we may realize the brutality of war, though we may know the value of life, yet we know equally well what would be the effects upon the lives and the minds of men who would lose their rights, who would accept denial of justice rather than hazard their physical safety. The progress of all the ages has come as the result of protests against wrongs and existing conditions and through assertion of rights and effective demands for justice. Our own freedom and republican form of government have been achieved by resistance to tyranny and insistence upon rights. Freedom and democracy dare not be synonymous with weakness. They exist only because there is a vision of the possibilities of human life, faith in human nature, and the will to make these things realities even against the opposition of those who see and understand less deeply. The people who are willing to maintain their rights and to defend their freedom are worthy of those privileges. Rights carry with them obligation—duty. It is the duty of those who live under free institutions at least to maintain them unimpaired.

As the result of the European war there is hardly a citizen who has not in some degree modified his opinions upon preparedness and national defense. The belief prevails that there must be some policy of preparedness and national defense, although there is wide diversion as to what policies ought to be adopted.

Preparedness and defense are practically the reverse and obverse sides of the same problem. There are two lines of approach to this problem—one indirect, involving consideration of the development, health, and conservation of the citizens, and the other direct, involving the weapons of defense and specific plans for the use of power.

In the past we have trusted much to the rugged physiques, muscles, and nerves trained and under control and ability to coordinate powers quickly to meet emergencies which belong to the outdoor life of a pioneer people. Life on the frontier developed physical strength and virile manhood. Mental and physical weakness could not survive in the dangers of that life. But the frontier has vanished. The majority of our citizens no longer live in the open, and they show in their physical development the effect of the restricted life of the city. They have not the physical strength or endurance that would fit them without further preparation to be called into service in a citizens' army.

Since opportunities for physical training are not freely and readily available to all, some definite national policy must be devised for physical training and physical preparedness of all citizens. Such a training could be readily given through our public school system and other auxiliary agencies.

Physical training is properly a part of educational work, and therefore should be under the control and direction of public agencies. We are constantly coming to a better appreciation of what proper physical development and good health mean in the life and for the working ability of each individual. Physical training and good health are just as important and just as necessary to all other interests of life as they are to national defense. The chief problem is that training of this nature should be in furtherance of broad, general usefulness and ideals and not be narrowly specialized or dominated by the purpose of militarism.

Physical training must fit citizens for industry, for commerce, for service in the work of the nation, as well as for service in defense of the nation. But physical training and preparedness are insufficient. There must be a spirit among the people that makes them loyal to country and willing to give themselves to its service and protection. That spirit can not exist unless the citizens feel that the nation will assure to all equal opportunities and equal justice. They must feel that they are a part of the nation, with a voice in determining its destinies. This spirit of loyalty depends not only upon political rights, but upon justice and right on the industrial field, aye, in all relations of life.

National preparedness involves also power to coördinate and to utilize national forces and national resources. War as it is being waged to-day is not determined merely by the men on the battle field, but also by the mobilization of the national resources, national industries and commerce. The real problem is the organization of the material forces and resources of the country, the coördination of these in the furtherance of a definite defensive military policy. All of the power and resources of the belligerent countries are concentrated to sustain the armies in the field and to equip them with the necessary weapons of war. The contest between industries, the question of commercial control, of superiority of economic organization, are fully as important as the contest between the soldiers on the battle field. Whatever, then, is the necessary part of the organization of industrial and commercial life is an important factor in national preparedness.

Our industrial and commercial development has been of a haphazard nature rather than in accord with any definite, constructive, statesmanlike plan. Because of the vast natural resources of our country and the variety of untouched opportunities, it has been possible for us as a nation to achieve tremendous results without definite plans, without much wisdom, and without the use of the best judgment. Considering our opportunities and the vast wealth of our country, to have failed would have been much more marvelous than the degree of success to which we have attained. As our population has increased, as free lands have disappeared, as there is no longer the former wide range of opportunity, success in the future will be more directly the result of the best use of available opportunities and of the best coordination of existing forces. As frontier opportunities have disappeared, so frontier business policies will no longer succeed. Commercial or industrial policies that aimed at immediate results with extravagant disregard for conservation or for economical utilization of materials will be replaced by better policies of developing commerce and industry upon a basis that means constructive development instead of exploitation. The economic highwayman must disappear as did the frontier highwayman.

Constructive development must have consideration for every factor concerned in production and must secure to each equal opportunities that will result in the best service and in the conservation of the future service. Such a policy will involve thorough organization of all the factors of production. This organization must extend to the human element in production in order that there may be accorded to the workers proper consideration of their needs and proper conservation of their labor power.

Preparedness as viewed from this standpoint is a part of the larger problems of national development—physical, mental, economic. It is a civic, an economic, as well as a military problem. National development can be in accord with the highest ideals only when all citizens have the right to voluntary association to promote their own welfare and to activities necessary to carry out the purpose of such organizations. This broad general policy includes associations of wage earners—trade unions. These associations of the workers must be recognized by all agencies, whether private or governmental, that are concerned with the life and the work of the workers.

Great Britain, in dealing with immediate problems of national defense, has found that the labor movement must be recognized as the natural and official representative of the wage earners. She has found that she can deal with national problems only when she considers the ideals and the demands of the chosen representatives of the workers.

But the principles of human welfare can not be ignored in military matters or in plans for national defense just as they can not be ignored in industry or commerce. That infinitely valuable and sacred thing—human creative power—and the safeguarding of human rights and freedom are of fundamental importance and are correlated with national defense and must not be sacrificed to any false conception of national defense. For to what end will a nation be saved if the citizens are denied that which gives life value and purpose?

The labor power of workers is to them their all. The deep significance of the protection and conservation of their labor—their very lives—is what the British Government of to-day has failed to understand. The deep significance of this declaration made a few days ago in England by an important labor organization has a meaning for us:

> Unless the Government is prepared to confiscate the wealth of the privileged classes for the most successful prosecution of the war, the railroad workers will resist to the uttermost the confiscation of men whose only wealth is their labor power.

Some employers of our country and some Government officials have refused to recognize organizations of wage earners, but organizations of wage earners are a necessary and an important part of the organization of industry and society, and any national policy that refuses to recognize and take into account such an important force must prove ineffective.

National policies, whether political or military, must be in accord with broad democratic ideals that recognize all factors and value each according to the service that it performs. There is a human side to all of our national problems, whether industrial, commercial, political, or military. It has been the general practice of governments to accord only to employers, the owners of capital, of the managerial side of commerce and industry, real participation in government and in deciding upon governmental policies. According to this custom the wage earners belong to the class of the governed, never to the governing class. This policy is a reflection of conditions existing in the industrial and commercial world. However, a change has been coming. The wage earners, through their economic associations, have been making the demand that those who supply the creative labor power of industry and commerce are surely as important to the processes of production as those who supply the materials necessary for production. They have, therefore, made demand that the human side of production shall at least be given as much consideration and as much importance as the material side. They demand that industries and commerce shall be conducted not only in the interests of production but with consideration for the welfare and the conservation of the human beings employed in production. They have asserted the right that every policy affecting industry, commerce, financial institutions, and everything that is involved in the organization of society in some way affects the lives of those concerned in the industries or occupations and the welfare of those who are the consumers. Therefore they demand that those who are concerned in the conduct of the industry or occupation must be given the same consideration as those who are to make profits by the industry. They have declared that there are principles of human welfare and have demanded that these must be considered in determining national policies. This is a democratic ideal and one which will promote the welfare of all of the people. Hence, it has an important bearing upon national preparedness, for it means that the great masses of the people will be better fitted physically and mentally to be intelligent, able protectors of the nation.

In addition to policies of general preparedness, which are a part of the larger problem of national development and conservation, there must be some specific plan and agency for national defense. Even the Socialists agree upon the necessity for wars of defense and for agencies of national defense. When war was declared the Socialists of Germany, of France, and of England flocked to the national standard to defend the flag. There is not a national Socialist organization in Europe that is not defending its participation in the war upon the plea of the necessity for national defense. The old international idealism of human brotherhood has, at least for this war, been shot to pieces on the battle fields of Europe. They forgot their theories of pacifism and flew to arms to defend their homes, their families, and their governments.

And the Socialists of the United States have not escaped dissensions as the result of the war and are now in a bitter wrangle upon the degree of military preparedness that ought to be adopted by this country. Some of the more violent pacifists are trying to forcefully eject from the party those who declare a policy of nonresistance as incompatible with the conditions that confront our Nation. Other Socialists, such as Charles Edward Russell, renounce their old dreams and acknowledge that human nature makes it necessary for us to be ready for national defense. Prominent members of the Socialist Party—Joshua Wanhope and W. J. Ghent—declare that socialism is a revolutionary movement and hence Socialists can not renounce the use of force. Both declare that the Socialist parties of the world have never taken the position of advocating Tolstoian nonresistance. Morris Hillquit has admitted that preparedness seems doomed to become the issue in the national convention and a plank in the Socialist Party platform. Henry L. Slobodin has said:

> The Socialists had many occasions during the last 50 years to deliberate upon this problem and declare the Socialist attitude on military preparedness. And not once did the Socialist declare against preparedness. On every occasion they declared that the Socialists were, in their own way, in favor of military preparedness. The Socialists always were against standing armies and huge military establishments. But they always were and now stand committed in favor of universal military training and a citizens' army.

Recent dispatches from Berlin say that the executive committee of the Socialist Party has by a vote of 28 to 11 adopted a resolution censuring 20 Socialist members of the Reichstag for attempting to thwart the party's policy by declining to vote in favor of the war credits.

Quite in contrast to this vacillation is the consistent attitude of the American Federation of Labor. The following declaration, made years ago, has stood the tests of the experiences of years. It embodies the wisdom labor has gained in the struggle of life and work.

> A man who is a wage earner and honorably working at his trade or calling to support himself and those dependent upon him has not only the right to become a citizen soldier, but that right must be unquestioned.
>
> The militia, i. e., the citizen soldiery of the several States in our country, supplies what otherwise might take its place—a large standing army.

> The difference between the citizen soldiery of the United States and the large standing armies of many European countries is the difference between a republic and monarchy—it is the difference between the conceptions of liberty and of tyranny.
>
> While organized labor stands against the arbitrament of international or internal disputes by force of arms, yet we must realize we have not yet reached the millennium; that in the age in which we live we have not the choice between armed force and absolute disarmament, but the alternative of a large standing army and a small one supplemented by a volunteer citizen soldiery—the militia of our several States.

The 1915 (San Francisco) convention of the American Federation of Labor reaffirmed this position by refusing to adopt resolutions which called upon all workers to desist from affiliating with any branch of the military forces.

A great majority of our Nation are agreed upon the necessity for adopting a definite policy for necessary national defense. Of course, there is not unity upon any one policy. Whatever plan may be adopted, the organized-labor movement of America, which is directly representative of millions of organized wage earners and indirectly representative of millions more of unorganized workers, demands that certain fundamental principles must be regarded.

All policies and plans for national defense must be determined by representatives of all of the people. The organized-labor movement, which is the only means for expressing the will and the desires of the great masses of our citizenship, asserts its right to representation in all committees, commissions, or bodies that decide upon military defense. The working people of all nations are always those most vitally affected by military service in time of peace or war. Upon them falls the burden of the fighting in the ranks and they have ever been expected to act as shock absorbers for the evil consequences of war. They have been the chief sufferers from evils of militarism wherever that malicious system has fastened itself upon a nation. Since they have been the victims of the hurtful policies of military defense, they will be the most interested in safeguarding our own national plans from dangers and from evils of militarism that have been disclosed by the experiences of other countries.

Preparedness is something very different from militarism or navalism. Both leave an indelible impression upon the nation, one for freedom and the other for repression. Militarism and navalism are a perversion of preparedness—instead of serving the interests of the people, the people are ammunition for these machines. They are destructive to freedom and democracy.

An understanding of human nature and of conditions is convincing proof that every nation must have some means of self-defense. The agencies and policies for this purpose must be carefully chosen.

The labor movement has always been a leader in the cause of democracy. The labor movement demands democracy in all things, including military organizations and institutions of the country. It holds that policies and methods of self-defense are best safeguarded when there is equal opportunity for all to become members of whatever organizations and institutions, whether military or otherwise, exist throughout the country. Not only must entrance to all institutions be freely and equally accorded to all but the military must be democratically organized, democratically officered, and under the control of heads who are responsible to the citizens of the land.

In addition to the Regular Army there must be a citizenship physically fit, ready and able to serve. Equal opportunity for military training must be provided for the citizenship generally—opportunity attended by provisions that make it equal in reality and truly democratic.

All agree that physical training with knowledge and the ability to bear and use arms will have a wholesome effect upon the health, strength, and preparedness of the people of the United States. If that training is given through voluntary institutions, organized upon a democratic basis, it will have a wholesome effect upon the civic life of the nation also.

Democratic spirit is essential. Any plan that recognizes professions or other distinctions will tend toward military castes, a condition incompatible with the fredom, the spirit, and the genius of our Republic.

Absolute democracy in voluntary service for national defense will have an effect upon all other relations of life. It will make for better understanding. It will bind all together in unselfish service and broaden and deepen that which constitutes the common life of our nation. Men can not resist the appeal of human nature.

The labor movement is militant. The workers understand the necessity for power and its uses. They fully appreciate the important function that power exercises in the affairs of the world. Power does not have to be used in order to be potential. The very existence of power and ability to use that power constitutes a defense against unreasonable and unwarranted attack. Ability and readiness for self-defense constitute a potential instrumentality against unnecessary and useless wars, or the denial of rights and justice.

The labor movement has never advocated the abolition of agencies for the enforcement of right and justice, or for the abolition of the military arm of government, but it does demand that these shall be so organized as to prevent their misuse and abuse as a means of tyranny against the workers, and to prevent the development of pernicious results that have grown out of militarism, the building up of a separate military caste and the subversion of civic life to military government and military standards. When military institutions and military service are separated from the general life of the people they become subversive to the ideals of civic life, they become dangerous to the best development and the best interests of the nation.

The rights and privileges of citizenship impose a duty upon all who enjoy them. That duty involves service to the Nation in all relations of the common life, including its defense against attack and the maintenance of national institutions and ideals.

There are no citizens of our country who are more truly patriotic than the organized wage earners—or all of the wage earners—and we have done our share in the civic life of the Nation as well as in the Nation's wars. We have done our share to protect the Nation against insidious attacks from within that were directed at the very heart of our national life and would have inevitably involved us in foreign complications. The wage earners stood unfalteringly for ideals of honor, freedom, and loyalty. Their wisdom and their patriotism served our country in a time of great need. No one can question that the wage earners of the United States are patriotic in the truest sense. No one can question their willingness to fight for the cause of liberty, freedom, and justice. No one can question the value of the ideals that direct the labor movement.

The labor movement takes the position that plans and policies for national defense and preparedness must be in accord with an educated conscience which can discern values, and is able and alert to distinguish the vital from the less important, and willing to insist upon the ideals and standards of justice, equality, and freedom.

Every observer knows that there is no peace—all of life is a struggle, physical and mental. Progress results only from the domination of the forces making for freedom and opportunity over the forces of repression.

I may summarize the situation into these few concrete suggestions:

1. The recognition of and cooperation with the organized-labor movement in all fields of activity—industrial, commercial, political, social, moral defense.
2. Establishment and extension of the citizen soldiery, democratically organized, officered, administered, and controlled.
3. Prohibition of the use of the militia for strike duty.
4. Education of wage earners upon an equality with all other citizens in manual training, physical and mental development, in organizing, officering, administering, and leading in the operations of a military character for the defense of our country.
5. Industrial education and vocational training as part of the educational system of the States, with financial aid of the Federal Government.
6. Education of the young, physical and mental, including the art and the duty of defense, the ability to bear arms, the inculcation of the ideals of democracy, civic rights, and duties and obligations.
7. Inculcate in all our people a social conscience for a better concept of industrial justice.

The thoughts and suggestions I have submitted should commend themselves to the serious and favorable consideration and action of all of our people—all their groups and associations. Put into actual operation they will make not only for immediate effective preparedness for defense, but will prove the potential means for permanent preparedness and defense, while at the same time make all our people more efficient in their every endeavor, and in addition safeguard the spirit of justice, freedom, democracy, and humanity.

AMERICAN FEDERATION OF LABOR,
Washington, D. C., January 19, 1916.

Mr. HENRY L. WEST,
*Executive Secretary, the National Security League,
New Willard Hotel, Washington, D. C.*

DEAR SIR: Since it was impossible for me to be present at this meeting of the National Security League, in accord with your request, I am writing you in regard to certain fundamental principles that ought to be presented in connection with the subject before your congress.

In considering preparedness and national defense, it is of paramount importance to have in mind that these concern the citizens of the whole Nation, and therefore all have a right to a voice in the determination of plans and policies that shall be adopted to secure these purposes. Voice in determining plans and policies means not only the right to pass upon them after they have been formulated but a right to representation in those bodies which shall deliberate upon and formulate plans.

No policy can be truly effective that is not representative of the thought and desires of the people generally. It is in keeping with the spirit of a free people that the wage earners who constitute the great majority of our citizens shall be represented fully in the determination of matters that vitally affect their welfare. The wage earners as well as our citizens generally agree that under present conditions every nation must have some definite policy of national preparedness and some means for national defense. It is true that many efforts to attain these purposes have been attended by undesirable developments and conditions. In some countries national preparedness and defense have been perverted into militarism and navalism and have foisted upon those countries customs, conditions, influences that are baneful. But these results are due to the fact that policies for national defense and preparedness were not safeguarded by infusing into every detail the spirit and the method of democracy. These experiences must have a significance and a lesson for us, in contrast with the experiences in the democratic systems which have been adopted in Australia and Switzerland. The fundamental principles of these systems could be adapted to meet our needs and conditions.

National defense and preparedness are but one phase of national life. Provisions for this purpose must be a part of the whole plan for national development. In other words, military training and military institutions must be a part of the life of the people rather than of a nature to alienate citizens from the spirit, the ideals, and the purposes of civic life. A great danger comes from isolating the military, from making military ideals separate and often in conflict with those of the masses of the people. The military should not exist as something apart, but for the service of the whole Nation. The basis and the prerequisite for all military preparedness and national defense is a citizenship physically strong, well developed, and fit. This essential can best be secured by making physical training a part of the work to be done at our public schools. Such training will not only prepare boys for service in the defense of the Nation but will make them efficient in all relations of life. It will afford to all equal opportunities for better health and preparedness to serve the country. The naval and military institutions of our country which give a special training to those who have a particular fitness and desire to follow military or naval professions ought also to be open to all who possess the required qualifications. Such a provision would enable men from all walks of life to enter the Army and the Navy—a condition which in itself would be in accord with the spirit of democracy.

Whenever the spirit of democracy is absent, there the accompanying evil of militarism, military castes, fasten deadly clutches upon freedom and civic opportunity, and obversely where the spirit of democracy obtains it tends to the abolition of military castes and the inherent vicious dangers of militarism.

In addition to those who enter the Regular Army and the Navy as a profession there must be reserves that can be called into the service of the country quickly to meet an emergency. It is necessary, therefore, that there should be opportunities afforded to the masses of the citizens for military training. However, all military training must be safeguarded to protect democratic ideals and civic institutions. Not only must there be equal opportunity for all citizens to enter military training organizations and camps; but that opportunity must be attended by such provisions as to make it an equal opportunity for both the poor and the rich. A fair compensation for service in military training camps must be paid as a substitute for wages lost. In these citizen organizations for military training there must be no recognition of distinctions, professions, or for any advantage or position that may be held by any citizen or group of citizens.

In order to insure naval preparedness and to maintain reserves for that service it is imperative that high standards of manhood and efficiency may be established in the Navy, the merchant marine, and for transport service.

When service in the Army and Navy and in training schools and training camps and reserve organizations is open to all; when those institutions are organized upon a democratic basis, democratically officered and administered; when there is equal opportunity for all for service in all positions, from the highest officer to the lowest in the ranks; and when the commander in chief of both Army and Navy and all military organizations within the country is an elected person directly responsible to the people, it seems to me that the greatest possible precaution has been taken to secure national defense and national preparedness without doing violence to the spirit of democracy and to our Republic. With these safeguards the dangers of developing militarism will have been reduced to the smallest possibility.

While the organized-labor movement deprecates war and is willing to do all within its power to prevent war, yet our experience with the practical affairs of life have taught us that we can secure justice and recognition of rights only when we are prepared to defend and protect our ideals of justice.

Those who understand the present social and industrial conditions and the forces that determine relations between nations and who understand human nature realize that no nation can afford to disarm at the present time or to be without means of national defense. The great problem then is to adopt the best policies and the best means to see to it that the methods by which we insure additional defense are in harmony with democratic ideals and are of a nature to promote the best interests and the welfare of our citizens in all relations of national life.

Yours, very truly,

Samuel Gompers,
President American Federation of Labor.

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THE PERIL OF PRIVATE MUNITION PLANTS

AN ADDRESS

DELIVERED AT

THE WORLD'S PEACE CONFERENCE HELD AT
THE HAGUE, NETHERLANDS, IN 1913

BY

MR. G. H. PERRIS

PRESENTED BY MR. KENYON
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THE PERIL OF PRIVATE MUNITION PLANTS.

Address at World's Peace Conference, The Hague, 1913, by Mr. G. H. Perris.

We have this year, for the first time, I think, in the history of the peace movement, an analysis, something like a scientific analysis, of the methods by which war material is supplied to three of the greatest countries in the world. In the case of the German Empire, Dr. Liebknecht has placed before the Reichstag the results of his inquiries. In the case of France, M. Delaisi has embodied the results of his inquiry in a little pamphlet, to be obtained upstairs. I have myself made a similar inquiry so far as concerns the great manufacturers of armaments for the British Empire. It is, therefore, not simply as regards the wickedness of militarism and the preparations for war in Germany that this question rises. Liebknecht's revelations in Germany have attracted peculiar attention; but what the investigations that have been made in England and France prove is that this disease is substantially the same in all the great countries of the world.

These inquiries give somewhat surprising results, or at least surprising to those who are already economic students. I shall very rapidly summarize for you the results of these inquiries. I suppose that it is natural for people who do not know the international peace movement, and who say that pacifists are sentimentalists, to say also that armaments are, as it were, a national fire engine—they are as necessary for the extinction of international animosity as are the fire engines in our cities for the extinction of fires. These people sincerely believe that the great names of Krupp und Schneider and Armstrong and others are properly honored, each in his own country. So in Germany the Kaiser decorated Krupp, visits his house, and shows signs of satisfaction in standing beside a member of that firm, and so we hear, in regard to the war in the Balkans, of "a contest between Germany and France" as to whether the cannons supplied to the combatants came from Krupp's or Schneider's; which is as if people competed for the honor of having served out poisons for the purpose of murder. And so in England Vickers, Maxim, and others are honorable corporations in the eyes of the public; and if there is a new battleship, it can not go into battle without having been christened by some lady of title with a bottle of champagne. It is a matter of honor thus to dedicate a means of human slaughter. It is supposed that the armaments are necessary for the peace of the world, and it is supposed that the makers of them are excellent citizens; and so it is also supposed that these traders can not be dangerous, because they are under the control of the respective Governments giving them their orders.

The students of this nefarious trade—and it is nefarious, ladies and gentlemen [applause]—know that the reality behind the appearance is somewhat different. First, there is revealed the immense wealth of the trade in armaments. Seven of the many companies in Great Britain which sell armaments to the British Government and to other Governments have a total capital of £30,000,000—750,000,000 francs—seven of them only, and there are scores of them. Two of these only, Vickers and Armstrong, this year distributed £1,500,000 in profits. I mention these facts to illustrate the wealth of the armaments trade.

THE WAR TRADERS' TRUST.

And we find that these firms, instead of being competitive business, are combined, both within each country and internationally. The plea that one company competes with another and makes honest sales to its Government is pure pretense. This combination is extending more and more into the international field. It is far from being complete. The whole business of armaments has not become cosmopolitanized, but it has reached a considerable degree toward that. It is very probable that it will be some time before great armaments makers of the three great entities—the groups of nations represented by the German Empire, the French Republic, and the British Empire—cease to compete with each other. They do undoubtedly compete to a certain extent. But they already meet each other at many points.

You may remember the case of the Deutsche Munitions- und Waffen-Fabrik, cited by Dr. Liebknecht in the Reichstag. This was the case **of a German company holding a considerable share in French companies and exerting a provocative influence in the Parisian press, in order that competition and jealousy as to orders for armaments may be kept alive.** In England we have a combination of the British and German Nobel companies—an Anglo-German dynamite alliance! We had up to recently the Harvey United Steel Company, a combination of British, American, French, and German capitalists. There are other such cases. There is no difficulty whatever, when profits are at the end of the road, for a Frenchman and a German to walk together [laughter]; no more difficulty than for a Frenchman and an Englishman to walk together. They are patriots both. [Laughter.] I think the **worst aspect, perhaps, of the operations of Krupp, Schneider, and Armstrong is their effort to exploit those minor nations of the world, some of which were described by an English poet, Mr. Kipling, as "half devil and half child."**

I will take the case of Messrs. Armstrong, Whitworth & Co., as a sample of the patriotism of these traders firm. The chairman is one Sir Andrew Noble, and I beg you to note the impartiality of his patriotism. He is a baronet and a knight commander of the Bath of Great Britain, a member of the Order of Jesus Christ of Portugal, and a knight of the Order of Charles the Third of Spain. He is also a first class of the Sacred Treasure of Japan, a grand cross of the Crown of Italy, and is decorated with Turkish and Chilean and Brazilian honors. His patriotism is truly the larger patriotism. [Laughter.] But, unlike our patriotism, it has a strict cash basis. [Applause.] Messrs. Armstrong will build warships for any country in the world; they are quite impartial. They are constantly sending armor plate to all parts of the world, no matter what is the cause of dispute. **You will observe the double influence of these sales, for if they sell a battleship to a foreign country it becomes an argument for increasing the British fleet in turn, and that means a new increase of orders for Armstrong, Whitworth & Co.** Some of you have no doubt looked down, as I have, upon the chimneys of the Pozzuoli-Armstrong Co. which pollute the Bay of Naples. Here Great Britain helps to maintain the fighting force of Germany's ally. There is also the Ansaldo-Armstrong Co., of Genoa. These companies not only build for Italy but also for Turkey. [Laughter.] I do not know whether the warships of those two countries actually came in contact in the Tripolitan War, but if they did they may both have been impartially built by Armstrong-Whitworth companies. You also remember the curious triangular puzzle lying over the destinies of the Far East in the relations of Russia, Japan, and China. The Armstrong Co. has its own ordnance and armor-plate works in Japan. It is always seeking orders for armaments in China. At the same time, in conjunction with two other British firms, Maxims and John Brown & Co., and also in connection with Blohm & Voss, of Hamburg, and Messrs. Schneider, this triple alliance is building up a new fleet for Russia, at the cost of the famine-striken peasantry. The Armstrong firm is at the present moment part owner of the Hispania Naval Construction Works at Ferrol. Another British syndicate is building a new fleet for Portugal, which is always trembling on the brink of bankruptcy. Heaven forbid that Spain and Portugal should quarrel; but what are these fleets for but to quarrel with? Whatever follows, the money will go into the pockets of these salesmen. The Armstrong, Vickers, and Brown firms are now building up great ordnance shipbuilding works in Canada for the exploitation of the innocent patriotism of the people of that colony. What country is the enemy of Canada? On one side is the American Nation—"Cousin Jonathan" as we call him. Across the ocean lies the rising Empire of Japan, which is England's ally.

What these events mean is that, over those frontiers that base-minded politicians have built—that history has built, of course, finally—there is carried on **an industry which has no frontiers whatever to its greed,** no limits to its fierce and pitiless exploitation of the weakness and folly of human nature. It can not be denied, I think, that the sole interest of these firms consists in embroiling one nation with another. They preach nationalism upon a national platform, and they practice nationalism, but it is a nationalism of a chameleon character, which changes its color with every order that some commercial traveler brings home to them. Some of you must wonder from time to time where the hill tribesmen of India, where the slave traders of the Persian Gulf, where the Somalis, where the revolutionists of the South American States, where all these get their rifles and munitions of war. The fact is there is no conscience whatever in the trade of death. [Applause.] These great companies will sell their deadly weapons to anyone. Those regulations which prevent evil-minded persons buying a revolver at a shop without showing a good license do not apply to cases like these. Such firms sell their weapons on some lonely frontier, and then we wonder there is a "little" war.

The most pitiful fact is the comparative helplessness of the governments concerned. I think we may say the British Government is as pure as any in the world, and not lacking, in the usual political concerns, in strength. But I am satisfied the British Government is nearly helpless before the array of interests it has to face whenever these merchants of war choose to go into the field of political agitation. In the last few years we have had one serious instance. **In 1909 there was an Anglo-German naval crisis, provoked and engineered largely, not simply by these firms in general, but by one particular man whose company had been disappointed of getting Government orders.** So strong an agitation had he created that he was at last admitted to a meeting of the British Cabinet Council in Downing Street; and the Government of Mr. Asquith accepted the false information Mr. Mulliner gave as to the "acceleration" of naval preparations at Krupp's works in Germany.

I hope no one here will allow his eyes to be blinded to the vital aspects of the subject by the comparatively unimportant story of the corruption in Berlin. Like the national espionage stories, these petty sensations keep our minds off the main thing. **The corruption of the war trade does not lie in petty bribery, but in the vast offer of directors' fees and opportunities for profit and employment.** The governing class of England is, to a large extent, saturated with the profits of the trade in armaments. Therefore, with all possible respect to that phrase which Mr. Norman Angell has made popular, "War does not pay," I put to you another proposition as important, which is that **war does pay. War pays very well; and there would be no war if it did not pay. It pays the few at the cost of the many.**

Some of you will remember the famous picture of the Retreat From Moscow. I have sometimes thought of another picture very much like that, in which, instead of those defeated legions struggling through the snow, with Napoleon at their head, I saw an army of the laborers of the world, beaten for the moment in their eternal struggle for some measure of justice, for some share in the fruits they have raised from the earth. I seemed to walk through these masses of despairing men as they struggled over the field of battle which is their daily life; and I came to the rear, and I saw, as in the picture, the phantom figures of the Cossacks, and, with them, those ghoulish figures that follow behind the line of every retreating army to steal from the dead and dying. I thought I came up to those figures, and to my astonishment I found they were not the jackals of whom the novelists and the historian tell us; they were not common thieves; but one I saw was a respectable English gentleman; he was decorated with the Grand Cross of the Order of the Bath, and he was decorated, if you please, with the Order of Jesus Christ of Portugal. [Applause.]

That is a scandal, a world scandal, which should be made to ring through the world, and which I hope will so ring before another International Peace Congress is held. You have in these three cases definite facts to go upon. But, friends, our business in this congress is not denunciation. The business of the International Peace Congress and the international peace movement is a rescue business—a business of life saving. Let us keep our eyes upon the positive aspect of this question—**our duty to rescue governments from what is put upon them by this corrupt and debasing trade,** our duty to rescue some of our fellow men from grinding toil and disease, brought upon them by the burdens they have to carry. I do not envy these men their decorations and rewards. That man is thrice accursed who carries his neighbor's death upon his back, who thrives upon the miseries of his fellows, and knows that every step he takes forward is at the cost of some of the poor, the helpless, and even the women and the children. I hope you will help me here, that we shall help others outside, to make this a real campaign of provocative opinion—so provocative that it will not only break the false reputation for national honor of these firms, but break the superstition which crystallizes around the trade. Let us break the superstition that the weapons of the soldier are defenses of national honor and influence. [Applause.] If we do that it will be impossible for Armstrongs to build up a fleet in Italy to beat a fleet they have set up in Spain; impossible for Japan to defeat Russia with both fleets built by the same firm. Superstition is the great enemy of the peace movement. When we have destroyed this superstition we shall see men can stand up for the first time free and equal, able to share in peace the fruits of their industry. [Applause.]

Cette résolution est adopté à l'unanimité.

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AFTER THE WAR IS OVER

SPEECH

DELIVERED BEFORE
THE

TRI-STATE GRAIN GROWERS' CONVENTION
HELD AT FARGO, N. DAK., ON JANUARY 20, 1916,
CONCERNING AGRICULTURAL PROBLEMS OF THE NORTHWEST

BY

HON. PORTER J. McCUMBER
SENATOR FROM NORTH DAKOTA

PRESENTED BY MR. GRONNA
FEBRUARY 7, 1916.—Ordered to be printed

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AFTER THE WAR IS OVER.

Mr. Chairman and members of the Tri-State Grain Growers' Convention:

After the war is over; after the groans are stilled; after the dead are all buried; after the sobs have ceased; after the god of slaughter lies gorged and drunken with blood; after his spouse, gaunt demon of famine, sits throned in her palace of skulls; after a wounded and weakened Europe, with staggering steps and slow, from the débris of fire and battle begins to gather material to rebuild the nations' trade, to gather the remnants of home and factory to revive the nations' life—what then?

This is the paramount question in the mind and heart of every thinking man. And, Mr. Chairman, this question comes home to the agricultural Northwest, fraught with greater concern than to any other section of the world outside the warring nations.

Basking in the sunshine of peace, with a crop unprecedented in the history of the State, with prices upheld by the demands of a foreign war, we are too liable to forget the instability of our position or to heed the march of coming events.

Since the 3d day of August, 1914, we have been living under abnormal conditions. We have been enjoying benefits derived from the sufferings and distress of our brother beings across the sea, who have been bleeding, dying, and exhausting themselves and their countries in the most gigantic and desperate carnage that has ever cursed this earth. But, Mr. Chairman and farmers, these conditions can not, will not last; and the value of our staple food products dependent upon those conditions can have no degree of permanency. And, further than this, let us not forget the great and fundamental law of nature, as well as of business, that for every excess there is a reaction, for every fever a relapse, for every abnormal value a following depression. If the prices of our food products have been boosted by war's necessities they will just as surely be depressed when war's feverish demands have given way to the feeble call of an impoverished Europe.

As the horoscope of the future can only be truly reflected through a normal lens, so a brief turning on of the light of known and established conditions adown the pathway of the future, when peace has resumed her reign, should be both instructive and profitable.

DANGER OF OVERSUPPLY.

Whither are we tending in the matter of food and cereal production? Statistics of world's supply during the last 15 years show an increase of grain-food products enormously beyond the increase of population. I have before me a table showing the per cent of increase in the great grain-producing and exporting countries from 1900 to 1915:

	United States.	Russia.	Argentina.	Canada west of lakes.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
Wheat	93	113	66	1,388
Oats	90	37	417	1,286
Barley	302	107	186	316

Have we stopped to consider the real meaning of these vast increases and to what result they inevitably lead?

The possibilities of food production in Mexico, Brazil, Argentina, Chile, Peru, Ecuador, Uruguay, Paraguay, etc., are almost beyond computation, while experts claim that western Canada alone can raise enough wheat to feed the world to-day. So the real question of the future will be not so much where can we get food for our people, but where will we get consumers for our food products?

Prior to the opening of hostilities we had been brought face to face with this supply-and-demand problem. At the close of the war this problem will return to us in a far more acute form, and demand the thoughtful consideration and earnest effort of every man interested in the welfare of the agricultural Northwest. Those of the warring nations which shall survive the battle of death to engage in the struggle of life must work with greater energy than ever before to repair their fortunes. Their greatest needs will be immediate. It will require years to erect destroyed factories and regain destroyed trade. But generous Mother Earth responds more quickly to the cry of her children for food. Within from 4 to 14 weeks her gardens and her fields will mature for them all her vegetables and all her grains. Their first great effort, therefore, will be agricultural; and so we may assume with assured confidence that the immediate result of peace will be an enormous increase in agricultural products, a still greater overproduction than we have known for years, and a consequent greater reduction in prices.

INFLUENCE OF WAR ON PRICES.

And right here you may well ask, Just to what extent are our values upheld by war's demands?

The influence of this war upon prices of wheat can best be deduced by a comparison of its price just prior to the war with the price immediately thereafter. By August 3, 1914, the crop of that year throughout the world was well understood. Most of the grain by that time had been gathered and the balance out of danger and computable. On August 3 of that year No. 2 northern wheat (old) was selling in Minneapolis for 92 cents per bushel; in the State of North Dakota for about 79 cents. Grain of that crop in North Dakota, which, if sold immediately, could have been contracted for at about 75 cents per bushel, brought by February 3 next $1.54 in Minneapolis, in the State about $1.43; by May 26 in Minneapolis $1.65, in the State about $1.54.

If, with crops all harvested or estimated for, the demands of war increased the selling price of our wheat nearly 100 per cent in six months, what reduction may we properly expect when not only that war demand ceases but the world's supply is also augmented? Or, placing the same question in the light of another fact: If on August 3, 1914, before war's alarms had startled the country, with a world's crop of 3,726,000,000 bushels, our North Dakota wheat was worth only about 75 cents per bushel, what might have been our price had peace resumed her tranquil reign by August 3, 1915, with a world's crop of 4,231,000,000 bushels? Mr. Chairman, it is my candid judgment that our 1915 wheat crop, the pride of our fertile State, would scarce have yielded a price above a 50-cent level.

SCIENCE INCREASING YIELD.

But it is not alone the increased acres of cultivated land that point toward ultimate surplus. Scientific efforts of late years have been directed almost wholly along the line of increased production with little or no thought given to the subject of increased markets for that increased production. Science has finally solved the mystery, and is now able to break down the line which from time immemorial has separated species and varieties. And so to-day plants are being crossed with plants, fruits with fruits, grains with grains, and even animals with animals, bringing forth an endless array of new varieties with ever-increasing productiveness.

Nor, again, is science working along the pathway of new and more productive varieties alone. Science of dry farming is moving the arid belt westward. Science of irrigation, conserving the waters from the snows of the Rockies, and supplying it to meet the thirst of the arid plains, is pressing the line of desert eastward. The time is not far distant when these two lines will meet and every acre of desert blossom and fruit for human needs.

HOW MEET DANGER OF OVERSUPPLY.

How may we meet this danger of oversupply—this unbalancing of the relation between production and consumption? Nature can not multiply peoples as rapidly as science and industry can multiply bushels. The "better-farming" theorist may say to you, "Raise more to the acre." This is good, to be sure, so far as it goes. But of what avail is increased yield if the price is depressed at the same ratio? The "diversified-farming" theorist may say to you, "Raise less wheat and more potatoes, barley, rye, and corn." I admit there is much good logic in this proposition if it is not followed by such numbers as will glut the market in those products. But we must take into consideration that which every farmer has found from actual experience, that a little surplus in the production of these other commodities sends their prices below a profit basis, and that if all farmers followed this rule there would always be a surplus of these products. In the year 1914 your normal oats crop brought you from 37 to 40 cents per bushel; your 1915 larger crop only about 25 cents per bushel. Because of its universal demand, a mere surplus or deficit in some particular section of the world causes less fluctuation in the price of wheat than in other crops, hence farmers have come to regard it as the one thing on which they must rely for their income.

I repeat, the problem which we shall be called upon to meet when this war is over will be that of securing an increased demand rather than an increased yield. How will we meet it? We have no control over either foreign fields of production or foreign fields of consumption. But, Mr. Chairman, we have control over our own fields of consumption, and it is in that field that we must ever look for our only available and proper solution. This American market of ours belongs of right to the American farmer and to the exclusion of every other farmer on the face of the earth, until farming, taken one year with another, is made just as profitable, measured by the labor expended, as any other great industry of the country. Does it so pay under normal conditions, not war conditions? For God knows we don't want our prosperity to rest upon the butchery of millions of our fellow beings. We want no prosperity wrung from the agonized hearts of widows or handed us by the feeble hands of fatherless children. We are entitled to have that prosperity buttressed upon a firm and stable industrial policy of our own country.

WE MUST LIVE ON OUR AMERICAN FARMS.

Let us remember that we live in this country, not in Canada, Mexico, Argentina, or Australia. We, 33,000,000 agricultural American people, live on American soil. We can not live anywhere else and remain Americans. We have over 1,000,000,000 acres of land capable of tillage. We must live off the soil of that land. We have made this country what it is. We have been the foundation upon which has been builded and upon which now rests the mighty superstructure of our industrial and commercial greatness. This country owes us a duty, and that duty is to so shape its commercial policy as to make these 33,000,000 people equally prosperous with the balance of our population.

In the enlightened progressive policy of Germany, which sent her ahead of all nations of Europe commercially, she followed this rule: A few years ago she said, "We have 60,000,000 German people; we have such and such resources in the German Empire. These people can only be made prosperous in the development of these resources. We must make them as prosperous as possible at home." Germany did not ask what it cost to produce steel or chemicals in any other country. She did not ask what the price of labor was in any other country. She simply said, "We will give the German market to the German people so far as they can supply it and then assist them by the strong arm of the Government to capture as much of the world's market as possible for their surplus."

So, I say, I do not care what it costs to produce a bushel of wheat, a pound of beef, or a dozen eggs in Canada or any other country in the world. The American farmer is not trying to equalize his condition with that of the Canadian farmer, the Chinese farmer, or any other farmer. What he is demanding and what he has a right to demand is that his industry shall be equal, as a money-making industry, to other great American industries. What I want is that we, the American farmers, shall receive such prices for our products as will enable us to pay our labor for producing them, whether such labor is performed by members of our families or others, the same wages the contractor who builds your great city structures pays for his labor. Until we can pay as much wages and make as much profit in our business as the contractor can, and until we have just as many comforts and luxuries and as much leisure as he can have, he and his kind have no moral right to complain of the prices we receive for our wheat, our meat, butter, and eggs.

And so I say the remedy can be expressed in only these words: The American market for the American farmer until every economic injustice between class and class has been wiped out. Give him the American market as you have given the same to the merchant or manufacturer for 50 years and the problem will solve itself. With the present increase in population consumption of food products will in a few years overtake production. Let them approach each other. Yes; and, if necessary, let consumption forge a little ahead, until it brings the value of the farmer's product up to the value of the thing he trades it for, measured by the amount of labor bestowed upon it.

NOT A PARTISAN QUESTION.

This is not a partisan question; it is an industrial question. The question whether the Government shall, in part, be supported by the levy of customs duties has never been a question of political difference. All parties agree that customs shall be levied for that purpose, and therefore I am free to refer to it in this nonpolitical gathering. It is simply in the adjustment of these duties—how they shall be levied and on what particular commodities they shall be levied—that parties differ, and I have found in the last analysis that it is generally a local question, each industry desiring to sell its products in a protected market and purchase in an unprotected one.

Now, the policy of a customs levy being a national and not a partisan means of raising revenue, and all such levies on foreign imports being in some degree protective, depending entirely on the amount of duty, I insist that the power should be so exercised as to bring the farming industry, in which about one-third of all our population is engaged, up to an economic equality with the most favored and profitable industries of the country.

IF PRODUCE SURPLUS, HOW BENEFITED.

But this question may be properly propounded to me by the farming public: If every year this country produces a surplus of wheat which must be exported and compete in the markets of the world with other grain-producing countries, how can any governmental industrial policy benefit us? You who are here have long since solved that question, but for the benefit of those who may not have gone to the root of the problem let me say briefly that if there were but one kind of wheat in the United States and it was all in one bin, with one export spout at one port, governmental policies could avail us little. But inasmuch as there are many varieties raised in sections far distant from each other which can not be profitably mixed, and the freight rates would render the combination impossible, even if they could be mixed, an exporting surplus of one or more varieties at one or more ports would have only slight influence upon a different variety in a different section, where the supply seldom meets the milling demand. A shortage of production, for instance, in the Minneapolis district could not be supplied from California or Texas. As I am speaking to the grain growers of the Dakotas and Minnesota, and my time is limited, I shall confine myself to this section of the country, merely remarking as I pass to this field that any cause which advances the value of grain in one section has a buoyant influence in every other section.

Mr. Chairman, we all know that eastern Montana, North and South Dakota, and Minnesota, the greatest wheat section in the whole country, produce a special, highly glutenized wheat. So great is the milling demand in this country for this grain that with a normal crop the supply is always on the deficit side. The mills need more than we raise. This gives us a price ordinarily far above the world's level of prices, provided the mills can not secure the same kind of grain elsewhere within a reasonable radius, and they can not secure the same kind elsewhere in the United States. The paramount importance of this home demand over the foreign demand is best exemplified by our 1910 crop, when Canadian grain was practically excluded. The average price paid for No. 1 northern wheat in Minneapolis during the year 1910 was $1.15 per bushel; in Liverpool $1.19, or only 4 cents above Minneapolis. Allowing 16 cents per bushel for transportation, insurance, and commission, and 2 cents for exporter's risk and profit, it will be seen that if we had been on an exporting basis the Minneapolis price that year would have been only $0.97 per bushel instead of $1.15. This was a short-crop year for the Northwest, and Minneapolis and other milling cities were sharp competitors for this grain.

But, now, remember that the vast Empire of Canada right north of us has always a surplus of about 150,000,000 to 200,000,000 bushels of the same kind of grain we produce, and if this surplus were allowed to flow freely over the line, as it surely would if our prices raised above export prices for a single day, our deficit would be converted into a continuous surplus and our prices would be kept down to an export basis; and in such a year as 1910 it would mean a loss of from 16 to 18 cents a bushel on every bushel sold.

AMERICAN FARMERS EARNED MARKET.

The American farmer has earned this American market; we should see that he has it. This is the first great step the Government can take to make farming profitable and farm life attractive. This is worth more to the farmer than all the educational and all the farm credit measures that could ever be enacted. What is wanted are profitable prices for our products, and profitable prices must depend upon profitable markets. We are not asking to be petted or babied. We just want opportunities equal to those enjoyed in the great city vocations. And, Mr. Manufacturer and Mr. Merchant, when our business, operated on the same plane as yours, with the application of the same intelligent energy and foresight, will pay the same wages per hour to all employed in it, and the same dividend

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upon investment, then we will continue to shield you from the blighting frosts of an overstocked market without complaint, and we will cheerfully meet the world's competition in our own business. But we object to our prosperity being always founded on our rigid economy while your business is conducted in comparative extravagance. There is no reason why you should not be forced to the same level of economy that we impose upon ourselves.

Does farming under normal conditions in this country pay as remunerative salaries to farm laborers, owners, and operators, and as good dividends on its capital employed as most other lines of industry—not, do you save as much, but do you earn as much? One glance at the marvelous structures, the grand palaces of our cities, answers the question as to where the vastly greater profits are made and expended.

COMPARING BUSINESS METHODS.

But let me give one or two illustrations. Suppose I should raise, say, $15,000 and embark in a commercial, manufacturing, or banking business in any of our real cities. How will I organize and operate my business? Well, the first thing after organization is the fixing of definite salaries for all employed—salaries to be paid whether the business pays dividends or not. I then vote myself a salary of, say, $2,500 per year as president. I employ my son as manager or cashier for $1,800 and my daughter as bookkeeper or assistant cashier for $1,200. Then, in addition, I must make that business pay all other help, all advertising, taxes, insurance, and depreciation charges, and if I do not make the business pay, in addition to this, a 10 per cent dividend on the investment I should probably be discharged for incompetency. That is what is expected in other lines of business. Now, suppose that, instead of investing as I have said, I should take this $15,000 and organize a corporation and run a farm as I would run my other business—vote myself a salary of $2,500 as president or general manager, my son $1,800 as overseer, my wife $1,200 as manager of the culinary department (and God knows if any woman on the face of the earth earns $1,200 a year it is the farmer's wife), my children just whatever I would have to pay other laborers for doing the same kind of work, then pay all taxes, insurance, depreciation, and other expenses—I want to ask you how much there would be left for a dividend, taking one year with another, exclusive of war years? You know and I know that you would be extremely lucky if you always were able to pay the salaries. Of course, you can get along, and some years get ahead, but it is because you put in your time and that of your wife and children for board and a few clothes, and economize in your expenses. And if it is a good year you save, and if it is a bad year you just simply have to borrow to tide you over another season, or make the clothes last over, that is all.

FARM V. CITY WAGES.

Mr. Chairman, I want to bring this point home to you in another illustration, because I am reaching toward a desired end and hope to be able to indicate how it may in time be accomplished.

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The Agricultural Department of the United States made a careful estimate of the farm earnings per farm throughout the United States during the year 1912. I believe in their computation they allowed, in lieu of interest paid on mortgages, a 6 per cent interest on capital invested. Without going into the details, the report gives the net earnings per farm for that year at $318. I think I am conservative in saying that there are on each farm an average of five persons, including men and women, capable of doing, and who perform, the work of an adult, for the 16-year-old boy keeps abreast with his father and the 14-year-old girl accomplishes the same as her mother. On that basis the average net earnings of each person is $63 per year, or $5.25 per month, or about 20 cents per each working day. I am certain that the farmers of the Northwest net a greater amount than that; but I am equally certain that if they were to allow themselves and the adult members of their families 50 cents per day net there would be nothing left to pay a dividend on the capital invested.

Now, I find from a report of the Department of Commerce and Labor for the same year that the average daily wage in the labor trades in the large cities of the United States were as follows: Carpenter, $4; stonecutter, $4.50; bricklayer, $5.25; locomotive engineer, $4.70; conductor, $4.16; foreman or overseer in great industries, from $5 to 7.

Thus, we have the net earnings of the farmers all over the United States and their families about 20 cents a day; the bricklayers, carpenters, etc., in the cities, about $4.50 per day.

Now, that is the difference between farm earnings and city earnings, and that is at the bottom of all the maladjustment of the relation between the urban and rural districts. To-day the farmer is living on a very low wage scale and the residents of the cities on a comparatively very high wage scale, with an ever-widening difference between them. The city purchases from the farmer on the low-wage basis and lives extravagantly, and the farmer purchases back from the city on the high-wage basis and lives economically. The difference between the net earnings of labor on the farm, including that of husband, wife, and children, and the earnings of like intelligent labor in the city, amounting to hundreds upon hundreds of millions of dollars annually, is the measure of the tribute exacted from the country to meet the cost of high living in the city—the spoliation of the American farmer to pay the many extravagances of the swifter city life.

JACKSCREW PROCESS OF INCREASED COST OF LIVING.

There is a never-ceasing upward tendency of labor wages and a never-ceasing growth in extravagance and higher business earnings to meet those extravagances in our city life. The city laborer does not get the advantage that might be supposed. His higher wages increase the cost of offices, store buildings, and homes. That in turn advances rentals; that in turn advances the cost of commodities handled or sold in those stores; that in turn makes it necessary to increase wages to meet increased rents and increased retail prices; and so this circling course of cause and effect has gone on and on in our great cities, and, like a jackscrew, has pushed prices ever upward until the cry of high cost of living reverberates throughout the land. Now, we should not complain of that if the same jackscrew process was at work under the prices of farm products, but it is not.

WHAT WE WANT TO SEE REALIZED.

I want to see the farmer, as manager, and his family, as employees, receive city salaries for their work, and after paying such salaries I want to see the farmer able to declare a dividend upon his investment in farm machinery, just the same as in other lines of business. I want to see the farm laborer receive just as much per hour for building a haystack as the city mason receives for building a chimney. I want to see farming made a success through the earning capacity of the land rather than through the everlasting saving capacity of the farmer. I want to see the farmer able to spend just as much for theaters, for travel, and for amusement as the merchant or manufacturer. I insist that the farmer's wife is as much entitled to her calling and her receiving days, her dressmakers, her hairdressers, her manicurers, as her sister whose husband may be engaged in city vocations. I want a more equitable division of labor, a more equitable division of profits, a more equitable division of pleasures. But I want that division to come right where it belongs, where honest, intelligent labor has earned it. Where one class can indulge in unnecessary luxuries and expensive habits, and another, equally intelligent, equally industrious class, are compelled to hold more closely to the necessities of life, we know there is an economic wrong to be remedied.

NO DANGER OF EXCESSIVE FOOD PRICES.

I know there is a fear that such equalization of earnings might work an injury to the army of city laborers. There are several answers to that proposition: First, there is slight relation between producer's price and ultimate consumer's price. Second, if you double the value of anything the farmer sells it would still cost the ordinary laborer of the city fewer hours or minutes of work to earn it than it costs the farmer to produce it. If it costs just as much labor to produce a bushel of wheat as it does to produce a Stetson hat, then why on earth should not that bushel of wheat buy a Stetson hat? The sooner the great industries of the country become more nearly equalized along this line the better for all the people of the United States.

But there is another reason why farm prices will never be disproportionately high. It is because the possibilities of food production are almost unlimited in this country, awaiting only a good living price to insure whatever production the public demand. Whenever the price of any agricultural commodity brings in a very good return its production will immediately increase and reduce its price. So, too, whenever you give to rural vocations a compensation which will insure equal luxuries to those who follow them there will surely be an exodus of city people to the farms and a correspondingly greater production, which will of itself act as a price equalizer.

NATURAL PREFERENCE FOR FARM LIFE.

Men prefer the natural to the artificial. We are drawn by ties of heredity to the fields. God started man in an Eden of fruit and flowers. He tethered him by the cord of necessity to the soil. Fly to what sublime heights he might, wander as far into the realms of knowledge as his mental powers could carry him, he must return to earth to appease his hunger and quench his thirst. Born of the dust of earth, nourished at her breast, the heart of humanity ever clings to her fair and fragrant fields, and the law of heredity ever draws our affections toward her rural scenes. And so it is that country life still continues, albeit it lacks the profits, the opportunities, the pleasures of city life. And well for this country that it is so. For just to the extent that we abandon the soil, that generator and regenerator of human character, we abandon those natural traits of candor, sincerity, and sturdiness that are ever associated with it and acquire those vices that ever lurk in the shadow of too great a wealth, or breed degeneracy in its indolent atmosphere.

Now, this maladjustment between city and country standards of earning and of living can not be remedied in a day nor by any extreme or ultraradical method. You can not dynamite it away. It has been brought about through an evolutionary process, and it must be remedied in the same manner. In your cooperative societies and in your efforts to secure a more direct exchange of farm and manufactured commodities you are taking the first step along the pathway of progress that leads to this ultimate end.

NECESSITY FOR ORGANIZATION.

Mr. Chairman, my words to-day have but poorly expressed my earnest conviction concerning the inequalities between the earnings of city and country, and have but faintly touched the deeper hues of my hope for the ultimate correction of every injustice.

The god of commerce and trade, with partial hand, has ever bestowed his richest favors within the limits of our great cities. Around them he has erected his rigid wall of commercial custom, whose cunning structure, never impeding the inward flow of the golden tide of wealth, yet ever checks its outward ebb. Within are marble mansions and gorgeous palaces whose gilded domes laugh back again the sun's bright beams in lines of dazzling light; within is art and beauty and grandeur and music and revel and song; within are amusements untold and extravagances beyond measure. Without are arduous labor, rigid economy, and self-denial.

How may the gates be opened that the excessive and ever-accumulating wealth of our great cities may flow back again over plain and vale, its place of origin, and gladden the whole land?

Mr. Chairman, there is but one magic key that can turn the bolt and swing the gates of wealth outward, and the name of that key is "Organization"—organization of the great agricultural interests of the whole country into one powerful, intelligent, active, effective unity. I care not what you may call it, Grange or Equity, so long as it is capable of understanding its real needs and of uniting its latent power for accomplishment. It is not sufficient that one or two States have such organization. It requires the majority of 48 States before any sentiment can be crystallized into a Federal law.

Organization is the whole law of progressive life. The more highly organized bodies ever live off the less highly organized. The lowly organized plants absorb the unorganized gases. The higher organized animal devours the lowly organized plants. The highest organized animal, the human animal, devours the lower animal. In the line of human vocations the more highly organized industries prey upon the less organized ones, and agriculture is the least organized of all.

When will we heed this lesson of life? When will we cease to be the merely inert and become a live, active agency in the industrial field, ready and able to assert and defend our rights in this competitive world and make effective our just demands?

Mr. Chairman, this is an age of industrial organization. The organization of one portion of the people of a country necessitates the organization of all portions. Without it we are neither in position to resist attack nor to prosecute aggressive warfare for our own advancement. All other great industries of the world have for a hundred years been organized. To be placed upon equal vantage grounds it is necessary for our agricultural industry to be equally organized. For years I have been advocating a great farmers' organization. They represent not only the greatest number but the greatest industry in importance in the whole United States. Their interest has been subject to every chance. They have no voice either in fixing the prices of the things they sell or the charges for the things they buy. If they have been successful in any degree, it has been due to the demand for their products and the economy practiced by themselves, rather than because of any direction of their own affairs. I hope the time will come, and come soon, when the great farming interests of the United States through organization will be able to treat with the world at large as to the selling price of their products as labor treats with capital for the value of what it has to sell.

Mr. Chairman, were I to express in the fewest possible words the most important present needs of the farming world, and in the order of their importance, I should declare, first, the American market, shielded from undue foreign invasion; second, such a Federal standardization and grading of farm products as will insure confidence in their character and prevent fraudulent and injurious practices; third, a system of rural credits, simple of operation and sure in its benefits, that will minimize the rates on interest-bearing obligations; and, fourth, cooperation in the marketing of farm products, including a closer relation between producer and ultimate consumer. And, Mr. Chairman, were I to express the only sure method of securing these benefits, I should sum it all up in two words, organized effort. Let us then work together for our common good and the sun of prosperity will smile as never before on all this land, endeared by the ties of fondest affections and most fervent hopes.

O

FURTHER URGENT DEFICIENC

FEBRUARY 12, 1916.—Ordered to be print

Mr. MARTIN of Virginia, from the committee of con
the following

CONFERENCE REPORT

ON THE BILL (H. R. 9416) MAKING APPROPRIAT FURTHER URGENT DEFICIENCIES IN APPR THE FISCAL YEAR ENDING JUNE 30, 1916, AN AND FOR OTHER PURPOSES.

The committee of conference on the disagreeing
Houses on the amendments of the Senate to the
making appropriations to supply further urgent de
priations for the fiscal year ending June 30, 1916
and for other purposes, having met, after full a
have agreed to recommend and do recommend t
Houses as follows:

That the Senate recede from its amendments num

That the House recede from its disagreement to
the Senate numbered 3, 4, 6, 10, 13, 15, 17, 18,
26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, and 3
same.

Amendment numbered 8:

That the House recede from its disagreement to
the Senate numbered 8, and agree to the same wi
as follows:

Omit all of that part of the matter inserted b
after the word "purposes" in line 21; and the S
same.

Amendment numbered 12:

That the House recede from its disagreement t
of the Senate numbered 12, and agree to the same w
as follows:

In lieu of the sum named in said amendment i
the Senate agree to the same.

Amendment numbered 16:

That the House recede from its disagreement to the amendment of the Senate numbered 16, and agree to the same with an amendment as follows:

In lieu of the matter inserted by said amendment insert the following:

NATIONAL PARKS.

There is appropriated, for the remainder of the fiscal year nineteen hundred and sixteen, from the several appropriations for protection, improvement, and management, and so forth, of the various national parks, including the Hot Springs Reservation, as well as from the revenues from privileges, and so forth, in the national parks and the Hot Springs Reservation, such sum or sums as the Secretary of the Interior in his judgment may deem necessary, to be expended in employment of the superintendent of national parks in the District of Columbia and in the field, and other necessary expenses in connection with the administration of the national parks and the Hot Springs Reservation: a detailed statement of such expenditures to be submitted to Congress.

And the Senate agree to the same.

Amendment numbered 24:

That the House recede from its disagreement to the amendment of the Senate numbered 24, and agree to the same with an amendment as follows:

Transpose the matter inserted by said amendment to follow line 6, page 28 of the bill; and the Senate agree to the same.

Amendment numbered 38:

That the House recede from its disagreement to the amendment of the Senate numbered 38, and agree to the same with an amendment as follows:

On page 30 of the bill, in line 1, after the sum "$59,259.50," insert the following: *, and the judgment therein in favor of "Andrew D. Everett, administrator, Thomas W. Everett, deceased," shall read "Thomas W. Everett, administrator, Andrew D. Everett, deceased," and the judgment in favor of "Mrs. Joseph E. Winn, administratrix, John Winn, deceased," shall read "John M. Winn and Mrs. Joseph E. Winn, administrators, John Winn, deceased"*; and the Senate agree to the same.

The committee of conference have been unable to agree on the amendments of the Senate numbered 1, 2, 5, 11, and 14.

THOMAS S. MARTIN,
N. P. BRYAN,
Managers on the part of the Senate.
JOHN J. FITZGERALD,
JOHN J. EAGAN,
Managers on the part of the House.

64TH CONGRESS }
1st Session }

SENATE

MERCHANT MARI

ARTICLE

ENTITLED

"SHALL WE GIVE UP THE SH

SHOWING HOW THE ADMINISTRATION
PROPOSES TO BUILD UP THE
MERCHANT MARINE

BY

HERBERT QUICK

PRESENTED BY MR. FLETCHER
FEBRUARY 12, 1916.—Ordered to be printed

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

SHALL WE GIVE UP THE SHIP?

HOW THE ADMINISTRATION PROPOSES TO BUILD UP A MERCHANT MARINE.

By HERBERT QUICK.

[Reprinted from the Saturday Evening Post of Feb. 5, 1916.]

When the barons were wresting Magna Charta from King John there was doubtless a shocking apathy on the part of those hewers of wood and drawers of water who subsequently developed into the electorate.

'Twas ever thus. 'Tis thus now. We sleep while the enemies of the people dig mines under us. We play pinochle or crokinole while the champions of our rights are in the trenches hurling back our foes. It is safe to say that the reader has slept peacefully o' nights ever since there was introduced in Congress "A bill to establish a United States shipping board, for the purpose of encouraging and creating a naval auxiliary and merchant marine to meet the requirements of the commerce of the United States with foreign countries, and with its Territories and possessions, and for other purposes." It is with the hope that the reader may be awakened that these lines are typed; for in all seriousness the shipping bill is a mighty important bit of legislation.

Far better would it be for our mental processes if we could lightly wave the matter aside by saying "It is a condition, and not a theory, that confronts us." We are confronted by at least four conditions and three theories.

The first of these conditions relates to the Navy. There seems to be no doubt that Congress will authorize the building of a lot of warships. Just how many is not the important matter here. Whether we shall proceed, according to the advice of the navy board, to build a Navy not only as large and powerful as that which the British Empire or any other empire will possess by the year 1925, or shall content ourselves with one second only to that of Great Britain, seems to be about the only question actually remaining unsettled in our navy-building program.

We are going to build, and build extensively. And now comes Secretary McAdoo and calls attention to the pertinent fact that when we have this Navy built we shall have the barrel and lock of a weapon without any stock; a fine grindstone without any crank; a good automobile without any gasoline; an excellent steam plant

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money in time of peace by putting them in commission as actual merchant vessels. The supporters of the bill do not claim that they certainly will, at first at least, earn profits. Some of them may do so. The Government owns all the stock in the Panama Railroad Co., for instance, a corporation which operates ships between the Canal Zone and the ports on the Atlantic coast. These Government-owned ships have done a profiable business, but no claim is made that the Government-owned shipbuilding corporation, which will probably be formed if the shipping bill passes, will be able to put into service 500,000 gross tonnage of merchant vessels with any assurance that they will earn dividends. "The direct earnings," says the Secretary, "may show a handsome return on the investment. Even if a loss is incurred, it will be a small price to pay for preparedness and the national safety." The opponents of the bill, however, point out certain alleged dangers to our national life through the intrusion of the Government into private business, which, unless they are mistaken, will constitute a price for "preparedness and the national safety" greater than any possible loss in dollars and cents and which could not be compensated for by any possible return on the investment in merchant vessels.

On this point Senator Gallinger quotes with approbation a letter from Mr. James McLoughlin, of New York. "If we do these things," writes Mr. McLoughlin, "socialism and paternalism will have set a new limit, and private property will be driven from the high seas, so far as the American flag is concerned." And this states the viewpoint of most of the opponents of the bill.

NAVAL JUNK AT WAR PRICES.

If we should unfortunately be involved in war with a naval power to-morrow, I do not know whether our Navy would be of much use or not. When the Spanish War broke out we had no naval auxiliaries, and the Army had no transports. That was the golden day for owners of marine junk. A study of the ridiculous things which the Government was forced to do for naval auxiliaries and transports leads us to suspect that the owners of Kipling's *Bolivar* multiplied her by a hundred and sold her to the Government:

> Just a pack o' rotten plates puttied up with tar.

Perhaps the *Bolivar* had changed her name. Possibly she had been registered under the name *Zafiro*, which was bought as a naval auxiliary for $87,597, and sold after the war to the Chicago Junk Co. for $3,300. The Navy bought 102 vessels, so called, for this crisis. It had to buy them, because there was no American merchant marine the ships of which could be commandeered for the Navy. It paid for these vessels $18,000,000. Seven of them—bought because they had to be bought, bought without reference to their real value, except that anything that could float had enormous temporary war value—cost the Government $1,736,922. After the war they were sold for $353,785.04. The loss was 80 per cent. But if war were to come upon us to-day we should be in vastly worse case. The ocean has been stripped of available merchant vessels by the present war. Even the *Bolivars* and *Zafiros* are either marooned in ports by hostile warships, commandeered by the nations to which the sea remains open, or are making their value on every voyage, so long as they float, as freighters.

We have an excellent Navy, I think, but I am at a loss to know how we should proceed to prove it if Austria, for instance, should unfortunately make a casus belli of the *Ancona* case, and break through the cordon of the British, French, and Italian Navies. The fact that the British, French, and Italian Navies are holding back a possible foe and the additional fact that the possibility of such a conflict is fortunately remote are doubtless comforting to those to whom they are comforting. We are forced to rely upon an accidental conjunction of world politics instead of our own equipment. We have the lump of thunder, but it has no handle on it; and the cattle are kept out of our corn, not by our own fences but by the fact that they are busily engaged in eating other people's crops.

The Navy is rather an expensive thing. It costs us real money. Since we have learned that the foreigner not only does not pay our taxes, but never did, the building of such a Navy as we are now engaged in constructing becomes a matter of importance to everyone who eats or drinks or wears clothing or lives in a house or owns property or does business—almost everybody, in fact. If we need a Navy at all, we need one that will function. On this point there will be no disagreement among advocates of preparedness in either House or Senate. All will agree that to build a Navy and to omit the matter of auxiliary vessels is quite as idiotic as to construct a gristmill and leave out of consideration the power with which to run it. When it comes to the question of ways and means for creating this merchant marine then all agreement will cease; then Senate and House will forget common sense and begin talking politics; then our silver-haired sages will fix their eyes on the election of 1916 and forget all about the Navy; and the probabilities are that in the closing days of the session we shall once more see aged men carried into the Senate on cots from beds of sickness, while those statesmen whose lungs most nearly approach leather will talk against time, seeking to surpass the record of Senator Carmack when he filibustered to death the last Republican ship-subsidy bill, and of Senator Burton, who occupied the floor for 13 hours to prevent from coming to a vote the Democratic ship-purchase bill of the last Congress. In these two bills the reader finds the things between which he must choose—a Government-built merchant marine or one privately built through ship subsidies. These are two of the three theories by which we are confronted, and the only ones with reference to which the Nation has any real choice.

FIFTY YEARS OF FANCY PROMISING.

The administration says: "Let us authorize the building of naval auxiliary vessels by the Government." The Republicans say, most of them, but not all by any means: "Put us in power and we will by means of subsidies stimulate the building of merchant vessels which will serve as naval auxiliaries."

On this question we have had a deadlock for 50 years, during which time every national platform, so far as the writer is informed, has contained a plank pledging undying devotion to the upbuilding of an American merchant marine. During all these 50 long years one or the other of the parties adopting these planks has been in power.

The American merchant marine has been so splendidly built up that at the outbreak of the present war there were just six American-owned vessels in the trans-Atlantic trade. These six vessels combined possessed about two-thirds of the tonnage of the largest two vessels in the German merchant marine, and the company owning the two German vessels possessed a fleet of nearly 500, under one management. Verily, brethren, there is little nutriment in platform promises, and we must try something else or give up.

The ship-purchase project has many sides. The side just discussed is a part of the general problem of preparedness. People who are against preparedness will, of course, oppose the building of merchant vessels as auxiliaries to the Navy. In their minds the naval auxiliary will be lost on the point of order that we do not need any Navy. It is safe to say that this is a minority opinion, in Congress and out of Congress. Most people are now rather strongly in favor of a strong Navy. If they are logical they will also be in favor of a naval auxiliary, of ships of the merchantman type. The administration has a plan for providing it, and that rather soon.

Opponents of the Government program will doubtless come forward with an equally definite plan for giving the lump of thunder that handle which it must have equally within a reasonable time. Otherwise they are put at a logical disadvantage—if there is such a thing as a logical disadvantage in politics.

This is the simplest phase of the shipping bill problem. Anybody who thinks about the matter at all can comprehend and see clearly the naval-auxiliary problem. He may not be able to see the solution, but he can grasp the question before the House. He can also see that if the Government is to proceed to acquire or build the vessels which the Navy needs, something must be done with them in time of peace. Shall they be kept in idleness? If so, they will rot and rust out, and when war breaks out they will have no crews and we shall have no trained body of men to manage them. To the average mind there would seem to be very little sense in building or buying merchant vessels to swing idly at anchor year after peaceful year, and, in a world where keels are wanted to bear freight and passengers between sundered lands, to bear nothing but barnacles on their hulls. It would seem perfectly certain that if the Government is going to build or buy ships as auxiliaries for the Navy in time of war, it will be forced to use them in commerce in time of peace.

That is the inevitable logic of the situation. That is why Root, Gallinger, and Smoot are perfectly correct in opposing the whole scheme, if, as they believe, it would be a ruinous innovation for the Government to own ships engaged in the carrying trade, or, worse still, to own and operate such ships.

The fact that the Government operation of merchantmen would raise socialism and paternalism to the limit is, according to Senator Lodge, not the most searching objection to it. He sees worse troubles than the *Lusitania* and the *Ancona* cases arising in the future from such a policy. Government-owned ships in trade, Mr. Lodge thinks, would create "a very new condition." Government ships have certain privileges as to port dues, clearances, liability for damages for collisions, and the like. A merchant ship must be subject to all the burdens and liabilities of marine law, and must bow to them. It is subject to stoppage, search, and visitation at sea in time of war by the warships of belligerents. A Government ship is not. Could we have kept the peace with the world for the past two years if our commerce had been carried in Government-owned ships? Would the nations not have insisted upon stopping, searching, and seizing them as prizes just as if they had been private vessels? And would not that have meant serious trouble? On December 28, 1915, for instance, the British merchantman *Shadmore* was fined $5,000 for entering the port of Baltimore without a bill of health. Would a Government ship submit to such impositions?

The administration spokesmen reply that the extremest step proposed is that the Government shall own the stock in a corporation operating merchant vessels. The bill provides that these vessels "shall, when and while employed solely as merchant vessels, be in all respects subject to all laws, regulations, and liabilities governing merchant vessels, whether the United States be interested therein as owner, in whole or in part, or shall have or hold any mortgage, lien, or other security thereon." In other words, they urge the proposed vessels shall have the same status as the vessels of the Panama Railroad Co. The Government will divest itself of all the touch-me-not privileges and hands-off immunities.

> The attribute to awe and majesty,
> Wherein doth sit the dread and fear of kings—

and warships. It will let its ships be sued, just as it consents itself to be sued in the Court of Claims, just as it lets the Panama ships be sued or libeled or fined or otherwise manhandled by courts and belligerents. It is suspected that the Alaska Railway the Government is building will be liable for lost-freight damage claims and the like, even though owned by the Government. Whether or not this legal disclaimer of special privileges will meet the objection of Senator Lodge is still in the lap of the gods.

DO WE WANT A MERCHANT MARINE?

And this brings us to another point which will be fiercely debated during this Congress—the badness or goodness of the administration measure as a means of building up foreign commerce. Do we want a merchant marine? The ayes seem to have it. The ayes have it. It is a vote. But, gentlemen of the convention, did you do any thinking on the question before you voted? Everybody seems to be in favor of a merchant marine; everybody seems to think if we had ships plying hither and yon, from Dan to Beersheba and from pillar to post, we should assuredly have a vast and profitable trade in all those interesting localities. Only here and there do we find one of those perverse and wrong-headed individuals who doubt this. Only on rare occasions do we run across the man who believes that Germany, for instance, used to have a large trade in Argentina because of German investments and loans and the fact that many German business men are domiciled there. These heretics do not get a hearing. Most of us take it for granted that we do need a merchant marine and that if we had the ships in commission trade would follow the flag.

That is why we have been promised a merchant marine for 50 years by all political parties. That is why Senator Gallinger years ago said:

> To deny adequate consideration to the merchant marine is to cheat the western and southern farmer of one of the surest hopes of increased market for the products of his industry. It is to cheat the merchant and manufacturer of an indispensable ally in our fight for trade with our powerful European competitors.

That is why Senator Fletcher, of Florida, in advocating the ship purchase bill in the last Congress, quoted Senator Gallinger's just-mentioned utterance. That is why Senator Gallinger eagerly welcomed Senator Fletcher to the fold as an advocate of a merchant marine. That is why Senator Smoot sat and actually pinched himself for half an hour—he himself hath said it—to find out whether he was asleep and dreaming as a Democrat, the learned and eloquent Senator from Florida, so splendidly voiced the true relations of the development of the merchant marine to the greatness of America.

If there is any one thing upon which the voters of the United States are agreed with their Representatives in Congress, it is in their views on the beneficence of a merchant marine. But please note this fact: Whenever gentlemen of one side are found in the forum pleading for our merchant marine, they close the debate by asking for ship subsidies or subventions. On the other hand, when a champion of the present administration rises in his place to remark that the welfare of this country is wrapped up in the growth of our merchant marine, he winds up by demanding votes for either direct or indirect Government ownership and operation of merchant ships. That is the real issue—Government ships versus subsidized ships.

On the whole, it is pretty hard to meet the arguments of those who say we are in need of a merchant marine for industrial and commercial purposes. Whether or not ships plying to Australia, South America, or South Africa would at once find cargoes is one question, but ships certainly do find cargoes to and from ports of the United States. The tracks of the New York Central as far west as Corning, some 300 miles, are at this writing reported to be congested with freight in cars which can not be unloaded at New York because of a lack of ships. There are embargoes on freight moving, or which would like to be moving, to Baltimore, Philadelphia, New York, and various other ports. Some of this congestion is owing to railway troubles. The probabilities seem to be that the railways of the United States are not now, and have not been for 15 years, equipped to carry the tonnage of the country in a time of business prosperity. On the marine other hand, it is also certain that if the railways were to deliver all the goods promptly at wharves amply equipped to handle them, there are not ships enough to do the job.

Where are the ships? They are transporting troops from the ends of the earth to the lines of battle. They are in Government service, carrying coal and ammunition. They are equipped as scouts and auxiliary cruisers. They are tied up in a thousand ways in the war; they are carrying very little except those things the transport of which is dictated by military necessity. If we had an adequate merchant marine, this would not be altogether so.

WHEN TRADE FOLLOWS FOREIGN FLAGS.

Even a small war hurts the United States dreadfully. At the opening of the Boer War, for instance, Great Britain withdrew 250 merchant ships for military purposes. This resulted in more of a shock to American business than most people realized. We are a great business people. We have more goods to deliver to the world than any other nation on the globe. Oddly enough we have no equipment for delivering them. Uncle Sam is a storekeeper who has no delivery wagons. He hires others to do his cartage. The draymen who are waxing fat on his business suddenly turn out to be owned by his competitors.

Do American business men get a fair deal in foreign trade as to freights and service from the merchant marines of Germany and Great Britain, on which they very largely are forced to rely? Are lines of boats owned and financed in Germany likely to favor German commerce rather than American commerce in South America, for instance? Can the commerce of the United States be assured of the same quality of service and the same rates between our Pacific coast and Australasia, for instance, as are accorded to Canadian commerce?

There are people who insist that blood is no thicker than water and that nationality in these things does not count. These people may be right or they may be merely innocent. It may be that in time of peace the Kaiser's Government, or that of King George, exerts no pressure on the national marine to favor the national commerce. It may be that the business relations between a manufacturer in Munich and the Hamburg-American merchant fleet are no closer than those between a manufacturer in Springfield, Ohio, and the Hamburg-American, and that Smith & Johnson, making hosiery in Janesville, Wis., are as near to the Cunard rate makers and voyage planners as are Johnson & Smith, knitters, of Manchester, England. I don't know; but there are a great many American merchants and manufacturers who think they know, and they say that though commerce does not always follow our flag it certainly encounters hard lines when it tries to follow the other fellow's. And all this in time of peace. In time of war the merchant marine of any country becomes a part of its military organization, and if it is a great maritime nation like the British Empire or Germany the whole business of the delivery of goods from the great deparment store of Uncle Sam is shot to rags the day of the declaration of war.

In August, 1914, all the warring nations laid military hands on their merchant shipping and it ceased to be private property. It was commandeered for military purposes. It ceased to have any concern with American shipments, except as those shipments were necessary for equipping and maintaining armies in the field and feeding the soldiers and the population. Everybody knows what happened. For months American commerce was struck numb and paralyzed. Our competitors had withdrawn the delivery wagons in which they had been delivering our goods and receiving therefor from $200,000,000 to $300,000,000 a year in freights. Business has now been resumed, but the delivery wagons are not in service at the old rates nor for all purposes. Freights are so high that trade in some lines, as lumber and timber, for instance, is still impossible. A few sample changes from former rates will show the burden which

American industry in these boom times is bearing. The rate on apples was several months ago $1.10 a box from New York to South America, but only 72 cents a box at the same time from Montreal to South Africa—two British ports. The freight on cotton rose from $1.75 a bale to $15 a bale. Freights have increased from 100 per cent to 1,000 per cent over normal.

The reader who is curious as to the bearing of this phenomenon on his own location, no matter where he may live, will probably find an article in which he is interested, directly or indirectly, on a single sheet of notes containing complaints of business men which I have before me—turpentine, lumber and timber, apples and other fruits, oranges, commission goods, shovel handles, tobacco leaf, coal, coke, iron, steel, ores, dried fruits, cement, flour, cotton, wheat, meats, lubricating oil, wool, leather. It is probably hard to find any article of commerce the price of which is not affected by this rise in freights. In ordinary times grain has been carried from New York to Liverpool for 4 cents a bushel. Since the war it has cost at times as much as 40 cents a bushel. In view of the fact that the expense of ocean shipment is deducted from the price received by the North Dakota wheat grower on his farm, it is safe to say that if the old freight rate had been adhered to during the war the North Dakota man would have received about 36 cents a bushel more for his grain.

IF UNCLE SAM TURNS SHIPBUILDER.

Business is booming in this country in spite of these things. It was paralyzed in 1914 and a large part of 1915 because of them. Once during Cleveland's administration we seemed to be on the verge of a war with Great Britain. Such a conflict would demonstrate in a catastrophe the fact of our absolute reliance on Great Britain's merchant marine for the carriage of our goods. The British merchant marine is the greatest business interest in that country. It has been built up by contributions from merchants and manufacturers to such an extent that almost every British family is financially interested in shipping. The suggestion that the United States Government is likely to go into the business of building and operating merchant ships, even to the extent of providing our Navy with its needed auxiliaries, is rather startling to the British, who have looked upon the American trade as their choicest feeding ground.

This does not necessarily mean that such a policy on the part of the Government would be a good thing, all things considered, for the United States. It might possibly be bad for both the British shipping interests and the American manufacturing and producing interests. It is hard to believe, however, that it is anything except an evil for the business of the United States to be so absolutely dependent upon the merchant marines of Great Britain, Germany, and some lesser nations. The shipping bill calls attention to this ancient evil, and offers its own cure for it. It seems on the face of the situation that it is worth the while of the ordinary American to give the matter a little attention.

Mr. David Lubin, for many years the American member of the International Institute of Agriculture at Rome, has been for two or three years crying from the hilltops the fact that the American farmer is quite completely at the mercy of shipowning interests over which American law has no control. Mr. Lubin is primarily interested in agriculture, and is under a mandate to represent agricultural interests; but what he says with reference to rates on ocean-going freights is quite as true with reference to all other products as it is to those of the farmers. A carload of freight, shipped from a foreign country to Lincoln, Nebr., let us say, or from Lincoln to a point beyond the seas, passes over transportation lines the rates on which are fixed by law or regulated by commission at every step except at sea. Why is it that freight rates on wheat from New York to Liverpool have been multiplied by 10 since the war and have remained stationary between Lincoln and New York? It is merely because in the one case the rates are controlled by law, and in the other case they are not controlled by anything except competition, which has been very largely eliminated by combination of shipping interests.

The ocean-going freight rate is the one big loose end in our national and international commerce. Mr. Lubin succeeded in getting through Congress, in the form of a joint resolution, a suggestion that the International Institute of Agriculture take up the matter of the regulation of ocean-freight rates. Then came the war, and the end of such civilized things as those with which Mr. Lubin was working.

Now comes the shipping bill with a plan for doing, or attempting to do, by law in this country a part, at least, of what Mr. Lubin sought to have done through international action. The first section of the revised shipping bill will, if passed, establish and set up the United States shipping board, which will at once take rank with the Federal Reserve Board and the Interstate Commerce Commissions in commercial and business importance. This is the board which will be authorized to form a corporation with a capital stock not to exceed $50,000,000, which the Government of the United States may, and probably will, own, whose object shall be "the purchase, construction, equipment, maintenance, and operation of marine vessels, to meet the requirements of the commerce of the United States with foreign countries and with Alaska, the Panama Canal Zone, the Philippine Islands, the Hawaiian Islands, or the islands of Porto Rico, Guam, and Tutuila, and the chartering and leasing of vessels for that purpose."

THE PROPOSED SHIPPING BOARD.

One or two members of the Cabinet, probably the Secretary of the Navy and the Secretary of Commerce, will be ex officio members of this shipping board, which will be composed of five commissioners. It will have the authority to construct in American navy yards and shipyards, as their capacity will permit, or elsewhere, vessels suitable for a merchant marine and adapted to the uses of naval auxiliaries and Army transports, and may lease or sell such vessels to the citizens of the United States for use in foreign commerce or in the trade with our overseas possessions.

The bill will authorize the President of the United States to charter, lease, or sell ships belonging to the Navy which are suitable for commercial uses and not required for use in time of peace, and transports belonging to the Army which are similarly useless except in war, and the vessels now owned and operated by the Panama Railroad Co. to citizens of the United States, including, of course, among such citizens, the Government-owned corporation it is authorized to form, for use in foreign commerce or trade with our overseas possessions.

In all these cases it seems to be the idea that whenever the shipping board shall have once laid its hand on a vessel, and then parted with the control of it, such vessel shall forever after be subject to the demand of the United States upon it for use as a transport, naval auxiliary, cruiser, or any other naval or military purpose.

For the purpose of financing these operations the shipping board is to have the avails of the sale of $50,000,000 of Panama Canal bonds. These are bonds which were authorized for the building of the Panama Canal, but were never issued.

Now, it is quite obvious that $50,000,000 invested in vessels will not go very far in providing the United States with a merchant marine. Senator Gallinger, who has given a great deal of study to the question, states that it would take $600,000,000 to purchase the ships necessary to carry all our commerce—but, of course, nobody wants to do all that, even eventually. The British merchant marine consists of more than 4,000 vessels, and probably nearly twice that. The largest shipping company of Japan owns about 300 vessels, while the largest one in Germany operated prior to the war nearly 500.

It was frequently said in former years that if foreign ships were once admitted to American registry our merchant marine would grow rapidly, but the ship registry act, passed August 18, 1914, finally removed the barrier and admitted such ships to our foreign trade. There has been no indecent scramble for registration, however. At this writing there have been admitted under this act 171 vessels, which average only just a little over 3,000 tons burden. More than half of these came in within 90 days after the passage of the act, and of these more than half were the boats of the United Fruit Co., the Standard Oil tankers, and the fleet of the United States Steel Co., representing no increase whatever in business.

THE BRITISH BOARD OF TRADE.

If the entry of the Government into this field will, by the investment of $50,000,000, drive out or scare out such part of the $550,000,000 more which might legitimately be required to cover our share of the field, and if there is the least hope of such investment, then the legislation is as "vicious" as Senator Lodge says it is. But what hope is there that any private investment at all will be made in this field in time to meet the national needs? What reason is there to think that the United States shipping board would adopt a policy hostile to such investments any more than to suspect that the Federal Reserve Board will camp on the trail of financial institutions which are not members of its system?

More and more as the discussion proceeds will it revolve about the really new and big idea in the measure—the creation of the United States shipping board. It is proof of the fact that we as a people have not cared much about the merchant marine that we never have had a board of any sort to look after the interests of water-borne commerce. When America separated herself from England the British Board of Trade was already a body hoary with age and dignity.

The framers of the Constitution must have known all about it. If they had been frankly building a national government instead of effecting a somewhat closer federation of thirteen little nations, they would no doubt have given us an American form of the British Board of Trade. The body which is proposed in the shipping bill will be created "for the purpose of encouraging, developing, and creating a naval auxiliary and merchant marine, to meet the requirements of the commerce of the United States with its Territories and possessions and with foreign countries." The British Board of Trade is endowed with much wider powers. It exercises nearly all the supervision of commerce and industry which exists in the United Kingdom. It has most of the functions which belong to our Departments of Commerce, Labor, and Interior, so far as these powers are exerted at all in Great Britain. It is also the British analogue of our Interstate Commerce Commission. It does many of the things performed by the Treasury Department with reference to clearance papers, coastguard work, lighthouses, and the like.

The American board provided for in the shipping bill will perform functions pretty closely related to those of the marine department only of the British Board of Trade. It will correspond to that department, however, only in the loosest sort of way. It will do many things which the British Board of Trade does not do, and on the marine side it will be altogether a more powerful body. It will perform functions which in shipping circles it has long been thought ought to be assumed by some board of the sort.

It is not to be expected, however, that such a body will be created in anything like unanimity of opinion. It cuts too deep into great affairs for that. It will be this board which will be given power to buy, build, equip, maintain, lease, sell, charter, and operate vessels for naval auxiliaries and also for actual commercial uses. It will be given power to form a Government-owned corporation for that purpose. It will have the authority to regulate the operation of all common carriers by water between interstate ports of the United States, and also between our ports and those of our territories and possessions.

And here we reach something new. This board will be given authority to regulate the operation of all American shipping firms engaged in traffic between the United States and foreign countries and to determine and prescribe for them just and reasonable rates for transportation not only between the interstate ports of the United States and between our ports and those of our territories and possessions, but between American ports and foreign ports. In other words, this bill will give to a United States shipping board power to control the single hitherto uncontrolled link in our transportation system, namely, rates by water everywhere, so far as the link is formed by American ships.

REGULATION OF OCEAN RATES.

It may be safely assumed that the shipping interests of the world will not look upon this measure as entirely devoid of interest. It squints too plainly toward universal regulation of ocean freight rates. Under present conditions it is perfectly possible for the rate on grain, for instance, to be nothing at all one day—which means that the grain is accepted as ballast--and 25 cents a bushel the next.

The control, untrammeled by law, over freight rates on waterborne commerce is a tremendous power. In view of testimony which has been made public to the effect that ocean shipping is so completely monopolized by great combines which have divided the world among them, and even put in commission "fighting ships" to beat the heads off independent owners who have the temerity to cut rates, it must be considered as a power which is no longer regulated by competition so one can notice it, in spite of the popular superstition that the tramp steamer can keep ocean freights from monopolistic heights. It is also the only transportation power left unregulated by law. The administration calmly proposes to begin the business of regulating it through the medium of a United States merchant marine controlled by the United States shipping board.

But this is not all. There is an innocent-looking clause in the bill which authorizes the shipping board to require all foreign vessels trading at our ports to take out licenses under the board. The power to license includes the power to regulate. No claim is made that under this clause rates for freight and passenger transportation in foreign vessels may be fixed at Washington; but it is suggested that such control over foreign shipping will bring our shipping board into close relations with similar bodies abroad, and may lead even to the steadying and stabilizing of rates. In other words, it may be the beginning of the subjection of such rates to the long arm and the strong arm of the law. What there may be in this deponent saith not.

But deponent hath no hesitancy in saying that experienced people will expect rather lively times in Washington, when not only the foreign capital engaged in carrying our foreign commerce, but the $100,000,000 or so of American capital invested in the same business, finds out what is going on, and stands by to repel boarders.

So new and far-reaching a provision as this must be debated, and is sure to be debated with some heat and perhaps a little light. The purposes for which the board is to be established, however, are evidently meant to be constructive. We have learned from Germany that intimate relations between railways and ships and between railway rates and marine rates are mightly helpful in building up a foreign commerce. The German Government-owned railroads will make whatever rate is necessary to get the product of a given factory aboard a German ship with prospects of profits. They will make special rates and give special service to put consignments of freight on the dock at the particular point of time which is necessary to the meeting of the sailings of ships. If an American railway company did any of these things for an American line it would be a criminal under the interstate-commerce law.

But the shipping bill will seek to cure all this—if it passes. Foreign commerce in American bottoms is to be given preferential rates on railroads and preferential service to meet specific sailings, and joint rates by rail and sea, and through bills of lading, and generally all sorts of conveniences, including the making of these joint rates without the delays incident to publication; and the authority of the Interstate Commerce Commission over the railroads on such business will be transferred to the new shipping board. Such discriminations in favor of American ships, it is argued, violate no treaties and do no injury to domestic trade, but may help materially both in building up foreign trade and in fostering the growth of a merchant marine.

The administration does not for a moment admit that the Government's entry into the shipping field will be a bad thing for individual enterprise. It expects to benefit it. For instance, it expects to devise ships of a better type for naval auxiliaries and for trade than are now in existence. It looks upon the oil-burning internal-combustion engine as the thing which may make junk of steam vessels. There seems to be some business foundation for this expectation. In a recent scientific magazine it is announced that the *Finland* and the *Kroonland* are to be converted into oil-propelled ships, for the reason that oil is cheaper than coal and that on each trip each of these vessels expects to save $9,000 in fuel and $3,500 in wages, while the coal-bunker space freed for the reception of cargo will enable the ship to make a net earning of $37,500 a voyage more than it could under old conditions. Experienced skippers tell me that they believe the age of the gigantic motor boat is upon us. We had a great merchant marine when at Bath and Baltimore we could build better ships than anyone else and could use in them the cheapest timber in the world. We lost out when the age of steel ships came in. Can we come back with the incoming of the age of oil? The supporters of the shipping bill think we can. They urge that we have the cheapest oil in the world, and that as a result of the saving of space and wages to be made with the new type of ship the bugbear of high American wages will pass.

FOR BETTER OR WORSE?

All things considered, do you think it would be a ruinous thing or a good thing for the Government to build these vessels which the Navy must have? If, as is quite possible, you are opposed to Government construction, any views you may have as to how else we can get them will be appreciated. Assuming that the Government builds these vessels, are you in favor of having them used in transporting our products and passengers, or do you prefer to have them laid up in harbor until war breaks out? If so, how do you propose to preserve them from rust, rot, and deterioration and provide them with trained crews on the breaking out of war? Are you in favor of the regulation by the Government of marine rates charged by American ships between the States and between the United States and our overseas possessions? Do you think such regulating would keep capital out of the business? Do you see any prospect of capital going into it anyhow? How do you feel about a great United States shipping board to deal with these questions?

I think it was Senator Lodge who made the statement in the last Congress that we had never had an election on this question, and in the absence of this the administration has no mandate authorizing it to enact any such epoch-making measure. Since that time there has been an election, and the administration still has a majority in both houses of Congress. Whether this constitutes a mandate on the shipping bill or not may be doubted. Anyway, you may be sure that your well-thought-out suggestions on this bill will be eagerly read by your representatives in Washington, and may possibly find their way into the Congressional Record.

64th Congress } SENATE { Document
1st Session } { No. 321

GOVERNMENT PUBLIC BUILDINGS

STATEMENT

OF

PUBLIC BUILDINGS OCCUPIED, IN THE COURSE OF
CONSTRUCTION, AND AUTHORIZED, USED OR
INTENDED FOR USE, IN WHOLE OR IN
PART, AS POST OFFICES; ALSO
SITES FOR SAME, PURCHASED
OR AUTHORIZED

PRESENTED BY MR. GALLINGER

February 7, 1916.—Referred to the Committee on Printing

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

REPORTED BY MR. GALLINGER.

In the Senate of the United States,
February 14, 1916.

Resolved, That the manuscript submitted by the Senator from New Hampshire (Mr. Gallinger), on February 7, 1916, entitled "Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same," be printed as a Senate document, and that 1,000 additional copies be printed for the use of the Senate document room.

Attest:

James M. Baker,
Secretary.

GOVERNMENT PUBLIC BUILDINGS.

There are 1,479 projects in the following list. For various reasons the Census Bureau was unable to furnish estimates in 13 instances, leaving 1,466 cases for which a fair estimate of the population at the time of the authorization of the project has been furnished. Of this number—

973 towns, or 66.4%, are under 10,000 population.
922 " " 62.9% " " 9,000 "
838 " " 57.2% " " 8,000 "
756 " " 51.6% " " 7,000 "
674 " " 46.0% " " 6,000 "
541 " " 36.7% " " 5,000 "
385 " " 26.3% " " 4,000 "
216 " " 14.7% " " 3,000 "
73 " " 5.0% " " 2,000 "
5 " " 0.3% " " 1,000 "
493 " " 33.6% " over 10,000 "

One hundred and two of the towns, or 7 per cent of the whole, were actually decreasing in population at the time of the authorization of the project.

In 1910 there were, according to the census of that year, 66 communities of over 10,000 population which up to the present time have not received a Federal post-office building, and probably this number has been increased during the past five years. It is true that some of those places are in close proximity to large cities, and doubtless receive their mail promptly through the post offices in those cities, but probably they would be much pleased to have their streets beautified by an expensive Federal building, which of course is the principal reason for erecting such structures in the much smaller towns and villages throughout the country.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized.

[Compiled from the Annual Report of the Supervising Architect of the Treasury Department for the fiscal year ending June 30, 1915.]

The dates given are the dates of original authorization of site or building.

The population is that at the time of authorization, as estimated by the Bureau of the Census.

In the case of completed projects the total cost of construction is given, while in uncompleted projects the limit of cost as fixed in the act of authorization is given.

Location.	Date.	Population.	Project.	Cost.	
Abbeville, S. C	May 30, 1908	4,326	Site and building	$50,000.00	Limit.
Aberdeen, Miss	Mar. 3, 1885	2,867	do	78,763.82	Total.
Aberdeen, S. Dak	Mar. 2, 1899	3,974	do	175,000.00	Do.
Aberdeen, Wash	June 25, 1910	13,852	Site	12,500.00	Do.
Do	Mar. 4, 1913	16,837	Building	112,500.00	Limit.
Abilene, Kans	May 30, 1908	4,001	Site	7,500.00	Total.
Do	June 25, 1910	4,180	Building	70,000.00	Limit.
Abilene, Tex	Mar. 2, 1899	3,383	Site and building	99,121.31	Total.
Abingdon, Va	July 7, 1882	1,192	do	86,810.50	Do.
Adrian, Mich	June 6, 1902	9,880	do	38,805.54	Do.
Aiken, S. C	June 30, 1906	3,712	Site	9,527.38	Do.
Do	May 30, 1908	3,806	Building	48,380.48	Do.
Akron, Ohio	June 26, 1891	29,221	Site and building	75,000.00	Do.
Do	Mar. 4, 1913	76,755	do	400,000.00	Limit.
Alameda, Cal	May 30, 1908	22,068	do	120,000.00	Do.
Albany, Ga	June 30, 1906	6,814	do	125,000.00	Do.
Albany, N. Y	Mar. 12, 1872	73,215	Building	626,770.80	Total.
Do	Mar. 3, 1873	75,296	Site	155,700.90	Do.
Albany, Oreg	May 30, 1908	4,061	Site and building	75,000.00	Limit.
Albert Lea, Minn	June 6, 1902	4,845	Site	5,945.62	Total.
Do	Mar. 3, 1903	4,972	Building	29,712.50	Do.
Albertville, Ala	Mar. 4, 1913	[1] 1,544	Site	5,000.00	Limit.
Albia, Iowa	do	5,575	do	5,000.00	Do.
Albion, Mich	June 25, 1910	5,859	Site and building	70,000.00	Do.
Albuquerque, N. Mex	June 6, 1902	7,214	Site	9,994.41	Total.
Do	June 30, 1906	9,182	Building	149,922.39	Do.
Aledo, Ill	Mar. 4, 1913	2,162	Site and building	65,000.00	Limit.
Alexandria, La	July 2, 1890	2,885	do	60,000.00	Total.
Alexandria, Minn	June 30, 1906	2,875	do	49,815.59	Do.
Alexandria, Va	Mar. 3, 1855	10,596	do	72,913.64	Do.
Allegheny, Pa	Apr. 23, 1890	105,003	do	413,945.20	Do.
Allentown, Pa	June 6, 1902	38,315	do	114,941.62	Do.
Alliance, Nebr	June 25, 1910	3,116	Site	15,000.00	Do.
Do	Mar. 4, 1913	3,270	Building	75,000.00	Limit.
Alliance, Ohio	May 30, 1908	13,919	Site and building	135,000.00	Do.
Alpena, Mich	June 30, 1906	12,357	do	100,000.00	Do.
Alton, Ill	do	16,254	do	87,717.45	Total.
Altoona, Pa	Feb. 21, 1899	37,849	do	125,000.00	Do.
Altus, Okla	Mar. 4, 1913	7,809	do	82,500.00	Limit.
Amarillo, Tex	June 25, 1910	10,125	do	200,000.00	Do.
Americus, Ga	June 30, 1906	7,911	do	74,841.43	Total.
Ames, Iowa	May 30, 1908	3,849	do	59,652.93	Do.
Amesbury, Mass	June 6, 1902	9,558	do	54,825.58	Do.
Amherst, Mass	Mar. 4, 1913	5,135	do	80,000.00	Limit.
Amsterdam, N. Y	June 30, 1906	27,699	Site	19,979.74	Total.
Do	May 30, 1908	29,499	Building	64,127.54	Do
Andalusia, Ala	Mar. 4, 1913	3,043	Site and building	50,000.00	Limit.
Anderson, Ind	June 6, 1902	20,645	do	80,000.00	Total.
Anderson, S. C	June 30, 1906	8,057	do	65,143.34	Do.
Annapolis, Md	Mar. 2, 1899	8,409	do	100,000.00	Do.
Ann Arbor, Mich	Mar. 3, 1903	14,594	Site	11,977.32	Do.
Do	June 30, 1906	14,698	Building	75,435.14	Do.
Anniston, Ala	Mar. 2, 1899	12,407	Site and building	149,898.62	Do.
Anoka, Minn	June 25, 1910	3,976	Site	4,000.00	Do.
Do	Mar. 4, 1913	4,080	Building	50,000.00	Limit.
Ansonia, Conn	May 30, 1908	14,681	Site and building	90,000.00	Do.
Antigo, Wis	June 25, 1910	7,236	Site	8,250.00	Total.
Do	Mar. 4, 1913	7,793	Building	70,000.00	Limit.
Apalachicola, Fla	do	[2] 3,065	Site and building	75,000.00	Do.
Appleton, Wis	June 30, 1906	16,125	Site	10,031.80	Total.
Do	May 30, 1908	16,452	Building	69,968.20	Limit.
Ardmore, Okla	June 25, 1910	8,675	Site and building	150,000.00	Do.
Argenta, Ark	do	[1] 11,138	Site	10,000.00	Do.

[1] Population Apr. 15, 1910. Not separately returned in 1900.

[2] Population Apr. 15, 1910. Decrease since 1900.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Arkadelphia, Ark	June 25, 1910	[1] 2,745	Site	$1.00	Total.
Do	Mar. 4, 1913	2,747	Building	55,000.00	Limit.
Arkansas City, Kans	June 25, 1910	7,508	Site and building	75,000.00	Do.
Asbury Park, N. J	May 30, 1908	9,294	do	132,198.20	Total.
Asheville, N. C	May 19, 1888	8,684	do	99,551.68	Do.
Ashland, Ky	May 30, 1908	8,329	Site	20,000.00	Do.
Do	Mar. 4, 1913	9,239	Building	100,000.00	Do.
Ashland, Ohio	June 25, 1910	6,848	Site	28,000.00	Do.
Do	Mar. 4, 1913	7,585	Building	100,000.00	Limit.
Ashland, Wis	May 22, 1890	[2] 9,956	Site and building	100,000.00	Total.
Ashtabula, Ohio	June 30, 1906	15,916	Site	14,929.26	Do.
Do	May 30, 1908	16,849	Building	79,978.66	Do.
Atchison, Kans	May 16, 1890	13,958	Site and building	100,000.00	Do.
Athens, Ga	June 6, 1902	11,197	do	99,486.01	Do.
Athens, Ohio	Mar. 4, 1907	4,706	do	99,961.24	Do.
Athens, Tenn	Mar. 4, 1913	2,385	do	50,000.00	Limit.
Athol, Mass	May 30, 1908	8,254	do	65,000.00	Do.
Atlanta, Ga	June 6, 1902	98,903	Site	199,796.95	Total.
Do	June 30, 1906	118,841	Building	1,022,500.00	Limit.
Atlanta, Tex	June 25, 1910	1,610	Site	4,472.41	Total.
Atlantic, Iowa	June 6, 1902	[3] 4,945	Site and building	30,000.00	Do.
Atlantic City, N. J	do	31,574	do	155,000.00	Do.
Attalla, Ala	Mar. 4, 1913	2,752	Site	5,000.00	Limit.
Attleboro, Mass	May 30, 1908	15,285	do	20,000.00	Total.
Do	Mar. 4, 1913	17,639	Building	100,000.00	Limit.
Auburn, Me	June 30, 1906	14,253	Site and building	73,614.99	Total.
Auburn, N. Y	Mar. 3, 1885	23,793	do	200,226.17	Do.
Augusta, Ga	Feb. 24, 1887	29,573	do	151,683.57	Do.
Do	May 30, 1908	40,737	Site	35,000.00	Do.
Do	June 25, 1910	41,072	Building	325,000.00	Limit.
Augusta, Me	Feb. 14, 1885	9,540	Site and building	196,545.69	Total.
Aurora, Ill	June 6, 1890	19,695	do	100,000.00	Do.
Aurora, Mo	May 30, 1908	4,587	Site	6,975.00	Do.
Aurora, Nebr	June 25, 1910	2,643	do	6,000.00	Do.
Do	Mar. 4, 1913	2,835	Building	50,000.00	Limit.
Austin, Minn	June 30, 1906	6,386	Site	7,893.30	Total.
Do	May 30, 1908	6,678	Building	49,908.41	Do.
Austin, Tex	Mar. 3, 1877	8,874	Building (site donated)	185,767.52	Do.
Do	May 30, 1908	28,238	Site	40,000.00	Do.
Do	June 25, 1910	30,013	Building	210,000.00	Limit.
Bad Axe, Mich	Mar. 4, 1913	1,652	Site and building	55,000.00	Do.
Bainbridge, Ga	May 30, 1908	3,917	Site	7,500.00	Total.
Do	June 25, 1910	4,248	Building	50,000.00	Limit.
Baker City, Oreg	Mar. 3, 1903	6,685	Site	4,934.31	Total.
Do	June 30, 1906	6,709	Building	65,000.00	Limit.
Bakersfield, Cal	June 25, 1910	12,855	Site	17,500.00	Total.
Do	Mar. 4, 1913	14,656	Building	135,000.00	Limit.
Baltimore, Md	June 18, 1879	326,137	Site	553,500.00	Total.
Do	Mar. 3, 1881	340,009	Building	1,534,278.23	Do.
Bangor, Me	Aug. 19, 1911	25,205	Site and building	440,000.00	Limit.
Baraboo, Wis	June 6, 1902	5,868	do	47,198.91	Total.
Barbourville, Ky	Mar. 4, 1913	1,815	Site	5,000.00	Limit.
Bardstown, Ky	May 30, 1908	2,047	do	10,000.00	Total.
Do	June 25, 1910	2,134	Building	60,000.00	Limit.
Bar Harbor, Me	June 6, 1902	([4])	Site	11,879.86	Total.
Do	June 30, 1906	([4])	Building	69,847.28	Do.
Barnesville, Ga	June 25, 1910	3,068	Site	4,500.00	Do.
Do	Mar. 4, 1913	3,077	Building	50,000.00	Limit.
Barnstable, Mass	Mar. 3, 1855	5,011	Site and building	35,983.71	Total.
Barre, Vt	June 30, 1906	9,854	do	98,486.66	Do.
Bartow, Fla	June 25, 1910	2,675	Site	5,000.00	Do.
Do	Mar. 4, 1913	2,858	Building	50,000.00	Limit.
Basin, Wyo	June 25, 1910	[5] 768	Site	1.00	Total.
Do	Mar. 4, 1913	[5] 768	Building	50,000.00	Limit.
Batavia, Ill	do	4,601	Site and building	95,000.00	Do.
Batavia, N. Y	May 30, 1908	11,166	Site	15,000.00	Total.
Do	Mar. 4, 1913	12,306	Building	85,000.00	Limit.
Batesville, Ark	June 6, 1902	2,545	Site and building	78,520.99	Total.
Bath, Me	Sept. 30, 1850	8,021	do	99,830.23	Do.
Bath, N. Y	Mar. 4, 1913	[6] 3,884	Site	13,000.00	Do.
Baton Rouge, La	Apr. 26, 1890	10,446	Site and building	99,999.93	Do.
Battle Creek, Mich	June 6, 1902	19,930	do	128,984.76	Do.
Bay City, Mich	June 19, 1888	26,413	do	201,100.00	Do.
Bay City, Tex	June 25, 1910	[5] 3,156	Site	5,000.00	Do.
Do	Mar. 4, 1913	[5] 3,156	Building	60,000.00	Limit.

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[1] Population Apr. 15, 1910. Increase negligible.

[2] Population June 1, 1890. Not separately returned in 1880.

[3] Decrease 1900–1910.

[4] Not separately returned, can not estimate.

[5] Population Apr. 15, 1910. Not separately returned in 1900.

[6] Population Apr. 15, 1910. Decrease since 1900.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Bayonne, N. J	June 25, 1910	55, 989	Site	25,000.00	Total.
Do	Mar. 4, 1913	62, 218	Building	100,000.00	Limit.
Beardstown, Ill	June 25, 1910	6, 132	Site and building	55,000.00	Do.
Beatrice, Nebr	Dec. 27, 1890	13, 494	.....do	64,976.11	Total.
Beaufort, S. C	Mar. 4, 1913	[1] 2, 486	.....do	50,000.00	Limit.
Beaumont, Tex	Mar. 2, 1899	8, 662	.....do	157,498.45	Total.
Beaver Dam, Wis	Mar. 4, 1913	7, 234	.....do	80,000.00	Limit.
Beaver Falls, Pa	July 2, 1890	9, 738	.....do	50,000.00	Total.
Bedford, Ind	Mar. 3, 1903	6, 840	Site	5,963.59	Do.
Do	June 30, 1906	7, 715	Building	65,000.00	Limit.
Bedford, Pa	June 25, 1910	2, 235	Site and building	80,000.00	Do.
Bedford City, Va	May 30, 1908	2, 489	Site	7,500.00	Total.
Do	June 25, 1910	2, 509	Building	45,000.00	Limit.
Beeville, Tex	.....do	[2] 3, 269	Site	5,000.00	Total.
Do	Mar. 4, 1913	[2] 3, 269	Building	50,000.00	Limit.
Belfast, Me	Aug. 4, 1854	5, 246	Site and building	35,983.26	Total.
Bellaire, Ohio	May 30, 1908	12, 559	Site	28,550.00	Do.
Do	June 25, 1910	12, 990	Building	66,450.00	Limit.
Bellefontaine, Ohio	May 30, 1908	7, 936	Site	10,000.00	Total.
Do	June 25, 1910	8, 269	Building	70,000.00	Limit.
Bellefourche, S. Dak	Mar. 4, 1913	[2] 1, 615	Site and building	75,000.00	Do.
Belleville, Ill	June 30, 1906	17, 507	.....do	89,925.12	Total.
Bellingham, Wash	.....do	19, 213	Site	19,904.15	Do.
Do	May 30, 1908	21, 778	Building	320,000.00	Limit.
Beloit, Kans	.....do	2, 945	Site	7,400.00	Total.
Do	June 25, 1910	3, 096	Building	58,000.00	Limit.
Beloit, Wis	June 30, 1906	13, 324	Site	19,974.99	Total.
Do	May 30, 1908	14, 234	Building	75,000.00	Do.
Belton, Tex	June 25, 1910	4, 173	Site	4,000.00	Do.
Do	Mar. 4, 1913	4, 299	Building	55,000.00	Limit.
Belvidere, Ill	June 30, 1906	7, 131	Site and building	73,000.00	Do.
Bemidji, Minn	Mar. 4, 1913	5, 951	.....do	75,000.00	Do.
Bennettsville, S. C	June 25, 1910	2, 660	.....do	50,000.00	Do.
Bennington, Vt	May 30, 1908	6, 105	Site	9,000.00	Total.
Do	June 25, 1910	6, 222	Building	75,000.00	Limit.
Benton Harbor, Mich	Mar. 4, 1913	9, 949	Site	25,000.00	Do.
Berkeley, Cal	June 25, 1910	30, 974	Site and building	180,000.00	Do.
Berlin, N. H	.....do	11, 837	Site	15,000.00	Total.
Do	Mar. 4, 1913	12, 625	Building	65,000.00	Limit.
Berwick, Pa	.....do	5, 778	Site and building	80,000.00	Do.
Bessemer, Ala	Mar. 3, 1903	7, 614	Site	7,535.72	Total.
Do	June 30, 1906	9, 132	Building	54,726.32	Do.
Bethlehem, Pa	June 25, 1910	12, 877	Site	19,001.00	Do.
Beverly, Mass	June 30, 1906	16, 819	.....do	23,960.53	Do.
Do	May 30, 1908	17, 743	Building	63,986.64	Do.
Biddeford, Me	.....do	16, 901	Site	20,000.00	Do.
Do	June 25, 1910	17, 097	Building	75,000.00	Limit.
Big Rapids, Mich	.....do	[1] 4, 519	Site and building	70,000.00	Do.
Big Stone Gap, Va	May 30, 1908	2, 404	.....do	100,000.00	Total.
Billings, Mont	.....do	8, 735	.....do	125,000.00	Limit.
Biloxi, Miss	June 6, 1902	5, 994	.....do	125,000.00	Total.
Binghamton, N. Y	Mar. 3, 1887	29, 262	.....do	152,890.35	Do.
Do	Mar. 4, 1915	52, 798	Site	100,000.00	Limit.
Birmingham, Ala	Apr. 19, 1888	21, 286	Site and building	350,000.00	Total.
Do	June 25, 1910	134, 234	Site	385,000.00	Do.
Do	Mar. 4, 1913	155, 608	Building	815,000.00	Limit.
Bismarck, N. Dak	May 30, 1908	5, 038	Site and building	150,000.00	Do.
Blackwell, Okla	June 25, 1910	3, 285	.....do	50,000.00	Do.
Blair, Nebr	Mar. 2, 1899	2, 857	.....do	43,000.00	Total.
Bloomington, Ill	Jan. 5, 1891	20, 652	.....do	75,000.00	Do.
Bloomington, Ind	June 30, 1906	7, 924	Site	15,392.53	Do.
Do	May 30, 1908	8, 385	Building	65,607.47	Limit.
Bluefield, W. Va	Mar. 3, 1903	6, 468	Site	9,035.01	Total.
Do	June 30, 1906	8, 647	Building	120,000.00	Limit.
Blue Island, Ill	June 25, 1910	8, 081	Site and building	70,000.00	Do.
Bluffton, Ind	Mar. 4, 1913	5, 134	.....do	70,000.00	Do.
Boise, Idaho	Mar. 2, 1895	4, 042	.....do	250,000.00	Total.
Bonham, Tex	May 30, 1908	[3] 4, 882	.....do	50,000.00	Limit.
Bonne Terre, Mo	Mar. 4, 1913	(4)	Building (site donated)	50,000.00	Do
Boone, Iowa	June 6, 1902	9, 298	Site and building	100,000.00	Total.
Boonville, Mo	May 30, 1908	4, 277	Site	8,000.00	Do.
Do	June 25, 1910	[1] 4, 252	Building	50,000.00	Limit.
Boston, Mass	Mar. 2, 1868	234, 176	Site	1,329,095.84	Total.
Do	Mar. 3, 1869	241, 465	Building	5,081,976.70	Do.
Boulder, Colo	June 30, 1906	8, 237	Site and building	69,992.83	Do.

[1] Population Apr. 15, 1910. Decrease 1900-1910.

[2] Population Apr. 15, 1910. Not separately returned in 1900.

[3] Decrease 1900-1910.

[4] Not separately returned.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Bowling Green, Ky	June 30, 1906	8,839	Site and building	$145,000.00	Limit.
Bowling Green, Ohio	May 30, 1908	5,192	Site	9,000.00	Total.
Do	June 25, 1910	5,225	Building	60,000.00	Limit.
Boyne City, Mich	do	5,303	Site	8,000.00	Total.
Bozeman, Mont	do	5,104	Site and building	75,000.00	Limit.
Braddock, Pa	May 30, 1908	18,652	Site and building	125,000.00	Limit.
Bradford, Pa	June 30, 1906	14,731	Site	20,031.99	Total.
Do	May 30, 1908	14,637	Building	70,000.00	Limit.
Brainerd, Minn	June 30, 1906	8,139	Site	4,459.14	Total.
Do	May 30, 1908	8,336	Building	45,000.00	Limit.
Branford, Conn	Mar. 4, 1913	2,585	Site and building	55,000.00	Do.
Brattleboro, Vt	May 30, 1908	6,285	do	140,000.00	Do.
Brazil, Ind	do	9,043	do	77,000.00	Do.
Brenham, Tex	do	[1] 4,957	Site	9,850.00	Total.
Do	Mar. 4, 1913	[2] 4,718	Building	60,000.00	Limit.
Bridgeport, Conn	June 19, 1888	44,724	Site and building	150,530.53	Total.
Bridgeton, N. J	June 30, 1906	14,095	do	74,925.90	Do.
Brigham City, Utah	June 25, 1910	3,701	do	55,000.00	Limit.
Brinkley, Ark	Mar. 4, 1913	1,766	Site	5,000.00	Do.
Bristol, Conn	May 30, 1908	8,907	Site and building	89,641.13	Total.
Bristol, Pa	do	8,846	do	75,000.00	Limit.
Bristol, R. I	Mar. 3, 1855	4,926	do	27,535.75	Total.
Bristol, Tenn	Mar. 1, 1899	5,029	do	55,000.00	Do.
Brockton, Mass	Feb. 20, 1895	33,325	do	75,000.00	Do.
Bronx (N. Y.), N. Y	May 30, 1908	387,100	Site	275,990.26	Do.
Brookfield, Mo	do	5,698	do	9,100.00	Do.
Do	June 25, 1910	5,754	Building	65,000.00	Limit.
Brookhaven, Miss	May 30, 1908	4,795	Site and building	65,000.00	Do.
Brookings, S. Dak	do	2,850	Site	7,250.00	Total.
Do	June 25, 1910	2,984	Building	75,000.00	Limit.
Brooklyn, N. Y	July 12, 1882	617,357	Site and building	1,915,539.38	Total.
Brownsville, Tex	Aug. 8, 1888	5,916	do	54,767.16	Do.
Brownwood, Tex	May 30, 1908	6,395	Site	10.00	Do.
Do	June 25, 1910	7,026	Building	70,000.00	Limit.
Brunswick, Ga	Mar. 3, 1899	9,004	Site and building	125,290.10	Total.
Bryan, Tex	June 25, 1910	4,143	do	50,000.00	Limit.
Buckhannon, W. Va	do	2,237	Site	10,000.00	Total.
Do	Mar. 4, 1913	2,410	Building	60,000.00	Limit.
Buena Vista, Va	do	3,493	Site	5,000.00	Do.
Buffalo, N. Y	Aug. 4, 1854	58,499	Site and building	195,839.09	Total.
Do	Apr. 5, 1888	233,988	Site	477,884.45	Do.
Do	Mar. 3, 1891	262,952	Building	1,554,597.52	Do.
Buffalo, Wyo	June 25, 1910	1,381	Site	7,000.00	Do.
Do	Mar. 4, 1913	1,558	Building	62,500.00	Limit.
Burlington, Iowa	Mar. 14, 1890	22,551	Site and building	125,000.00	Total.
Burlington, N. J	May 30, 1908	8,156	do	55,000.00	Limit.
Burlington, N. C	June 25, 1910	4,829	Site	8,500.00	Total.
Do	Mar. 4, 1913	5,134	Building	65,000.00	Limit.
Burlington, Vt	June 6, 1902	9,013	Building (old site)	246,643.31	Total.
Burlington, Wis	Mar. 4, 1913	3,415	Site and building	70,000.00	Limit.
Butler, Mo	do	[2] 2,894	do	60,000.00	Do.
Butler, Pa	Mar. 3, 1903	13,607	Site	19,925.39	Total.
Do	June 25, 1910	20,920	Building	74,880.76	Do.
Butte, Mont	Mar. 2, 1899	28,003	Site and building	299,960.91	Do.
Cadillac, Mich	June 25, 1910	8,422	do	105,000.00	Limit.
Cairo, Ill	Mar. 3, 1857	1,556	Building (site donated)	281,044.14	Total.
Calais, Me	June 6, 1902	[1] 7,342	Site	11,931.36	Do.
Do	June 30, 1906	[1] 6,708	Building	69,751.37	Do.
Caldwell, Idaho	Mar. 4, 1913	4,286	Site	8,500.00	Do.
Calumet, Mich	do	[3] 34,845	do	20,000.00	Limit.
Cambridge, Md	do	6,600	Site and building	80,000.00	Do.
Cambridge, Ohio	May 30, 1908	10,739	Site	18,000.00	Total.
Do	June 25, 1910	11,387	Building	67,000.00	Limit.
Camden, Ark	Dec. 27, 1890	2,586	Site and building	25,000.00	Total.
Camden, Me	May 30, 1908	2,978	Site	9,500.00	Do.
Do	June 25, 1910	3,019	Building	75,000.00	Limit.
Camden, N. J	Jan. 27, 1887	52,744	Site and building	225,011.50	Total.
Camden, S. C	June 25, 1910	3,591	do	50,000.00	Limit.
Cameron, Tex	Mar. 4, 1913	[2] 3,263	do	55,000.00	Do.
Canandaigua, N. Y	June 30, 1906	6,808	do	82,500.00	Do.
Canon City, Colo	Mar. 4, 1913	5,567	Site	15,000.00	Do.
Canton, Ga	do	2,339	do	5,000.00	Do.
Canton, Ill	June 25, 1910	10,529	Site and building	85,000.00	Do.
Canton, Miss	do	3,939	do	50,000.00	Do.
Canton, Ohio	June 2, 1890	26,191	do	106,000.00	Total.
Cape Charles, Va	Mar. 4, 1913	2,212	Site	7,500.00	Limit.
Cape Girardeau, Mo	June 30, 1906	7,068	Site and building	130,000.00	Do.

[1] Decrease 1900–1910.
[2] Population Apr. 15, 1910. Decrease 1900–1910.
[3] Calumet township.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Carbondale, Pa	Mar. 3, 1903	14,512	Site	$27,966.70	Total.
Do	May 30, 1908	16,372	Building	59,981.44	Do.
Caribou, Me	June 25, 1910	5,389	Site	10,000.00	Do.
Do	Mar. 4, 1913	5,556	Building	50,000.00	Limit.
Carlinville, Ill	do	3,646	Site	10,000.00	Do.
Carlisle, Pa	June 30, 1906	10,041	Site and building	84,040.74	Total.
Carnegie, Pa	June 25, 1910	10,062	do	80,000.00	Limit.
Carroll, Iowa	Mar. 4, 1913	3,739	do	70,000.00	Do.
Carrollton, Ga	May 30, 1908	3,049	Site	8,200.00	Total.
Do	June 25, 1910	3,323	Building	45,000.00	Limit.
Carrollton, Ill	Mar. 4, 1913	2,314	Site	7,000.00	Do.
Carrollton, Ky	Mar. 2, 1899	2,145	Site and building	30,007.95	Total.
Carrollton, Mo	June 30, 1906	3,608	Site	8,516.29	Do.
Do	May 30, 1908	[1] 3,529	Building	60,000.00	Limit.
Carson City, Nev	Jan. 3, 1885	[2] 4,100	Site and building	145,723.68	Total.
Cartersville, Ga	May 30, 1908	3,887	Site	7,500.00	Do.
Do	June 25, 1910	4,065	Building	51,250.00	Limit.
Carthage, Mo	June 30, 1906	9,456	Site and building	90,000.00	Do.
Caruthersville, Mo	Mar. 4, 1913	4,047	Site	5,000.00	Do.
Casper, Wyo	May 30, 1908	2,305	do	9,000.00	Total.
Do	June 25, 1910	2,674	Building	55,000.00	Limit.
Castine, Me	Mar. 2, 1833	(3)	Site and building	3,750.00	Total,
Catlettsburg, Ky	June 30, 1906	3,353	Site	8,528.50	Do.
Do	May 30, 1908	3,437	Building	100,000.00	Limit.
Cedar Falls, Iowa	Mar. 4, 1913	[4] 5,012	Site and building	95,000.00	Do.
Cedar Rapids, Iowa	June 9, 1890	18,039	do	130,000.00	Total.
Cedartown, Ga	May 30, 1908	3,414	Site	6,500.00	Do.
Do	June 25, 1910	3,565	Building	50,000.00	Limit.
Centerville, Iowa	June 6, 1902	5,598	Site and building	40,000.00	Total.
Central City, Ky	Mar. 4, 1913	2,894	Site	7,500.00	Do.
Central City, Nebr	do	2,678	Site and building	55,000.00	Limit.
Centralia, Ill	June 30, 1906	8,542	Site	7,465.49	Total.
Do	May 30, 1908	9,117	Building	60,000.00	Limit.
Centralia, Mo	Mar. 4, 1913	2,230	Site	6,000.00	Total.
Chadron, Nebr	June 25, 1910	2,707	do	9,000.00	Do.
Do	Mar. 4, 1913	2,984	Building	110,000.00	Limit.
Chamberlain, S. Dak	do	1,390	Site and building	60,000.00	Do.
Chambersburg, Pa	June 30, 1906	9,511	Site	23,232.19	Total.
Do	May 30, 1908	11,656	Building	65,000.00	Limit.
Champaign, Ill	June 6, 1902	9,776	Site	10,024.07	Total.
Do	Mar. 3, 1903	10,024	Building	70,000.00	Do.
Chandler, Okla	Mar. 4, 1913	2,197	Site and building	55,000.00	Limit.
Chanute, Kans	June 25, 1910	9,371	do	75,000.00	Do.
Chapel Hill, N. C	Mar. 4, 1913	1,163	do	60,000.00	Do.
Chariton, Iowa	do	[4] 3,794	do	70,000.00	Do.
Charleroi, Pa	June 30, 1906	8,199	do	90,000.00	Do.
Charles City, Iowa	June 25, 1910	5,925	Site	8,500.00	Total.
Do	Mar. 4, 1913	6,377	Building	70,000.00	Limit.
Charleston, Ill	do	5,999	Site and building	75,000.00	Do.
Charleston, S. C	Feb. 9, 1887	58,313	do	507,497.25	Total.
Charleston, W. Va	Apr. 9, 1880	4,177	do	88,979.40	Do.
Charles Town, W. Va	Mar. 4, 1913	2,740	do	75,000.00	Limit.
Charlotte, Mich	June 25, 1910	4,901	Site	7,500.00	Total.
Do	Mar. 4, 1913	5,117	Building	65,000.00	Limit.
Charlotte, N. C	Apr. 13, 1888	10,753	Building (on mint lot).	91,797.39	Total.
Charlottesville, Va	June 6, 1902	6,455	Site and building	130,123.24	Do.
Chattanooga, Tenn	Oct. 25, 1885	21,642	Building (site donated)	274,743.21	Do.
Cheboygan, Mich	Mar. 4, 1913	6,966	Site and building	70,000.00	Limit.
Chelsea, Mass	May 30, 1908	32,763	do	125,000.00	Do.
Cherokee, Iowa	Mar. 4, 1913	5,181	do	70,000.00	Do.
Cherryvale, Kans	do	4,547	do	60,000.00	Do.
Chester, Pa	May 16, 1890	20,203	do	80,000.00	Total.
Chester, S. C	June 30, 1906	4,488	do	45,977.69	Do.
Cheyenne, Wyo	Mar. 2, 1895	12,828	do	337,746.17	Do.
Chicago, Ill	Feb. 13, 1895	1,381,496	Building (old customhouse site).	5,132,169.99	Do.
Do	May 30, 1908	2,096,557	Site	1,750,000.00	Limit.
Do	Mar. 4, 1913	2,327,943	Site (East Sixty-third Street).	50,000.00	Do.
Chicago Heights, Ill	May 30, 1908	12,729	Site and building	65,000.00	Do.
Chickasha, Okla	do	8,966	Site	13,501.00	Total.
Do	June 25, 1910	10,458	Building	135,000.00	Limit.
Chico, Cal	do	3,772	Site and building	100,000.00	Do.
Chillicothe, Mo	May 30, 1908	6,387	Site	8,500.00	Total.
Do	June 25, 1910	[4] 6,265	Building	130,000.00	Limit.
Chillicothe, Ohio	June 6, 1902	13,288	Site and building	80,000.00	Total.
Chippewa Falls, Wis	Mar. 3, 1903	8,317	Site	9,989.66	Do.
Do	June 30, 1906	8,586	Building	85,000.00	Limit.

[1] Decrease 1900-1910.

[2] Decrease 1880-1890.

[3] Not separately returned. Can not estimate.

[4] Population Apr. 15, 1910. Decrease 1900-1910.

Statement of public buildings occupied, in course of construction, and authorized, and or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Cicero, Ill	June 25, 1910	14,724	Site	$6,000.00	Total.
Cincinnati, Ohio	Mar. 12, 1872	223,156	do	708,026.00	Do.
Do	June 10, 1872	224,126	Building	5,088,382.25	Do.
Clarinda, Iowa	June 30, 1906	3,616	Site and building	60,000.00	Limit.
Clarksburg, W. Va	Mar. 3, 1885	2,640	do	88,194.93	Total.
Clarksdale, Miss	June 25, 1910	4,124	do	115,750.00	Limit.
Clarksville, Tenn	Mar. 3, 1891	8,037	do	50,000.00	Total.
Clarksville, Tex	May 30, 1908	[1] 2,066	Site	5,000.00	Do.
Do	June 25, 1910	[2] 2,065	Building	45,000.00	Limit.
Clay Center, Kans	May 30, 1908	3,366	Site and building	65,000.00	Do.
Cleburne, Tex	do	9,817	do	100,000.00	Do.
Cleveland, Ohio	Mar. 3, 1856	32,212	do	173,566.81	Total.
Do	Mar. 3, 1899	366,757	Additional land and new building.	3,774,136.94	Do.
Cleveland, Tenn	June 30, 1906	4,900	Site	4,528.16	Do.
Do	May 30, 1908	5,228	Building	50,000.00	Limit.
Clifton Forge, Va	June 30, 1906	4,913	Site and building	60,000.00	Do.
Clinton, Ind	Mar. 4, 1913	7,195	do	60,000.00	Do.
Clinton, Iowa	Mar. 2, 1899	22,013	do	100,000.00	Total.
Clinton, Mo	June 30, 1906	[1] 5,019	Site	6,021.71	Do.
Do	May 30, 1908	[1] 5,006	Building	64,886.53	Do.
Clinton, S. C	Mar. 4, 1913	3,680	Site and building	55,000.00	Limit.
Cody, Wyo	June 25, 1910	[3] 1,132	Site	4,509.00	Total.
Do	Mar. 4, 1913	[3] 1,132	Building	50,000.00	Limit.
Coeur d'Alene, Idaho	June 25, 1910	7,424	Site and building	100,000.00	Do.
Coffeyville, Kans	May 30, 1908	11,217	do	75,000.00	Do.
Cohoes, N. Y	Mar. 4, 1913	24,942	do	140,000.00	Do.
Coldwater, Mich	June 30, 1906	6,051	do	50,080.51	Total.
Coleman, Tex	Mar. 4, 1913	3,535	Site	1.00	Do.
Colfax, Wash	do	2,976	do	7,000.00	Limit.
Collinsville, Ill	June 25, 1910	7,472	Site and building	70,000.00	Do.
Colorado Springs, Colo	June 6, 1902	22,369	do	306,649.87	Total.
Columbia, Mo	do	6,469	Site	5,018.91	Do.
Do	Mar. 3, 1903	6,770	Building	41,126.77	Do.
Columbia, S. C	Mar. 3, 1857	7,406	Site and building	412,189.17	Do.
Do	June 25, 1910	26,405	Site	75,000.00	Do.
Do	Mar. 4, 1913	27,808	Building	265,000.00	Limit.
Columbia, Tenn	June 30, 1906	[1] 5,870	Site and building	64,571.26	Total.
Columbus, Ga	Feb. 9, 1891	17,636	do	106,000.00	Do.
Columbus, Ind	June 30, 1906	8,550	Site	14,965.03	Do.
Do	May 30, 1908	8,682	Building	74,667.63	Do.
Columbus, Miss	June 30, 1906	8,025	Site and building	59,978.12	Do.
Columbus, Nebr	do	4,440	Site	6,018.38	Do.
Do	May 30, 1908	4,730	Building	64,950.58	Do.
Columbus, Ohio	Apr. 11, 1882	58,437	Site and building	323,915.70	Do.
Comanche, Tex	Mar. 4, 1913	2,956	do	50,000.00	Limit.
Commerce, Tex	do	3,114	do	50,000.00	Do.
Concord, N. H	June 10, 1880	13,852	do	227,141.42	Total.
Concord, N. C	June 30, 1906	8,405	Site	9,960.85	Do.
Do	May 30, 1908	8,562	Building	60,000.00	Limit.
Concordia, Kans	do	4,222	Site	7,500.00	Total.
Do	June 25, 1910	4,436	Building	70,000.00	Limit.
Conneaut, Ohio	do	8,342	Site	15,000.00	Total.
Connellsville, Pa	June 30, 1906	9,257	do	29,579.10	Do.
Do	May 30, 1908	9,910	Building	85,376.64	Do.
Connersville, Ind	June 30, 1906	7,390	Site	9,968.25	Do.
Do	May 30, 1908	7,565	Building	60,000.00	Limit.
Conway, Ark	Mar. 4, 1913	3,025	Site	2,000.00	Total.
Cookeville, Tenn	June 25, 1910	[4] 1,848	Site and building	100,000.00	Limit.
Cordele, Ga	May 30, 1908	5,424	do	67,500.00	Do.
Cordova, Alaska	Mar. 4, 1913	[4] 1,152	do	100,000.00	Do.
Corinth, Miss	May 30, 1908	4,761	do	63,500.00	Do.
Corning, N. Y	Mar. 3, 1903	11,805	Site	14,549.71	Total.
Do	June 30, 1906	12,704	Building	58,175.24	Do.
Corpus Christi, Tex	May 30, 1908	7,552	Site and building	140,000.00	Limit.
Corry, Pa	do	5,873	Site	14,100.00	Total.
Do	June 25, 1910	6,008	Building	100,000.00	Limit.
Corsicana, Tex	June 30, 1906	9,581	Site and building	77,803.76	Total.
Cortland, N. Y	May 30, 1908	11,030	Site	20,000.00	Do.
Do	June 25, 1910	11,554	Building	80,000.00	Limit.
Coshocton, Ohio	Mar 4, 1913	10,518	Site and building	115,000.00	Do.
Council Bluffs, Iowa	May 23, 1882	18,738	do	247,732.50	Total.
Covington, Ky	Feb. 17, 1873	25,920	do	294,891.49	Do.
Covington, Tenn	June 25, 1910	2,994	do	45,000.00	Limit.
Covington, Va	May 30, 1908	3,990	Site	4,500.00	Total.
Do	June 25, 1910	4,259	Building	45,000.00	Limit.

[1] Decrease 1900-1910.

[2] Population Apr. 15, 1910. Decrease 1900-1910.

[3] Population Apr. 15, 1910. Not returned in 1900.

[4] Population Apr. 15, 1910. Not separately returned in 1900.

Statement of public buildings occupied, in course of construction, and autho
or intended for use in whole or in part as post offices; also sites for same,
or authorized—Continued.

Location.	Date.	Population.	Project.	Co
Crawfordsville, Ind	June 6, 1902	7,204	Site and building	$65,000.0
Creston, Iowa	Mar. 2, 1899	7,682	.....do	99,883.4
Crockett, Tex	Mar. 4, 1913	4,336	Site	6,000.0
Crookston, Minn	June 6, 1902	5,807	.....do	5,983.1
Do	June 30, 1906	6,713	Building	74,982.2
Crowley, La	May 30, 1908	4,930	Site and building	55,000.0
Cuero, Tex	.....do	[1]3,169	Site	3,750.0
Do	June 25, 1910	[2]3,109	Building	65,000.0
Cullman, Ala	May 30, 1908	1,963	Site	5,000.0
Do	June 25, 1910	2,147	Building	50,000.0
Cumberland, Md	Feb. 20, 1895	14,808	Site and building	146,330.6
Cynthiana, Ky	May 30, 1908	3,537	Site	9,850.0
Do	June 25, 1910	3,609	Building	65,000.0
Dallas, Tex	July 7, 1882	16,180	Site and building	141,000.0
Do	Mar. 4, 1913	105,852	Site	300,000.0
Dalton, Ga	June 30, 1906	4,936	Site and building	49,132.3
Danbury, Conn	May 30, 1908	19,522	.....do	115,000.0
Danville, Ill	Jan. 12, 1891	11,792	.....do	100,000.0
Do	May 30, 1908	26,627	Building (old site)	275,000.0
Danville, Ky	June 30, 1906	4,983	Site and building	79,999.8
Danville, Va	Feb. 11, 1880	7,442	.....do	112,299.5
Darlington, S. C	May 30, 1908	3,644	.....do	50,000.0
Davenport, Iowa	Jan. 26, 1891	27,422	.....do	125,000.0
Dawson, Ga	Mar. 4, 1913	4,090	.....do	60,000.0
Dayton, Ohio	Mar. 3, 1887	53,901	.....do	160,521.0
Do	June 25, 1910	116,911	.....do	860,000.0
Deadwood, S. Dak	June 6, 1902	3,528	.....do	211,405.4
Decatur, Ala	Mar. 4, 1913	4,554	.....do	65,000.0
Decatur, Ill	June 6, 1902	22,522	.....do	108,438.5
Decatur, Ind	Mar. 4, 1913	4,567	Site	10.000.0
Decorah, Iowa	June 30, 1906	3,459	.....do	4,910.8
Do	May 30, 1908	3,525	Building	59,077.3
Defiance, Ohio	.....do	7,376	Site	9,000.0
Do	June 25, 1910	[2]7,327	Building	65,000.0
DeFuniak Springs, Fla	Mar. 4, 1913	[3]2,017	Site	6,000.0
Dekalb, Ill	June 6, 1902	6,351	Site and building	99,231.3
De Land, Fla	June 25, 1910	2,839	Site	5,000.0
Do	Mar. 4, 1913	3,210	Building	60,000.0
Delavan, Wis	June 25, 1910	2,454	Site and building	62,500.0
Delaware, Ohio	June 30, 1906	8,639	Site	9,513.5
Do	May 30, 1908	8,859	Building	64,974.9
Delphos, Ohio	Mar. 4. 1913	5,189	Site	7,000.0
Del Rio, Tex	May 30, 1908	(4)	Site and building	89,988.9
Demopolis, Ala	June 30, 1906	[1]2,490	Site	4,979.6
Do	May 30, 1908	[1]2,452	Building	39,750.4
Denison, Iowa	.....do	3,063	Site	9,900.0
Do	June 25, 1910	3,140	Building	50,000.0
Denison, Tex	June 30, 1906	12,930	Site and building	124,877.3
Denton, Tex	Mar. 4, 1913	4,890	.....do	75,000.0
Denver, Colo	May 8, 1882	49,378	.....do	636,235.6
Do	June 30, 1906	186,214	Site	486,879.6
Do	May 30, 1908	199,927	Building	2,000,000.0
Des Moines, Iowa	July 28, 1866	8,933	Site	15,000.0
Do	Mar. 2, 1867	9,415	Building	217,023.5
Do	June 6. 1902	67,088	Site	150,001.2
Do	June 30, 1906	77,063	Building	500,000.0
De Soto, Mo	June 25, 1910	[2]4,721	Site and building	60,000.0
Detroit, Mich	May 25, 1882	134,074	.....do	1,480,000.0
Devils Lake, N. Dak	June 30, 1906	3,840	.....do	149,876.3
Dickinson, N. Dak	June 25, 1910	3,709	Site	9,500.0
Do	Mar. 4, 1913	4,145	Building	90,000.0
Dillon, S. C	.....do	1,974	Site	7,500.0
Dixon, Ill	Mar. 3, 1903	7,721	.....do	9,962.0
Do	June 30, 1906	7,485	Building	74,976.9
Donora, Pa	Mar. 4, 1913	[3]8,174	Site and building	75,000.0
Dothan, Ala	June 30, 1906	5,579	.....do	100,000.0
Douglas, Ariz	June 25, 1910	[3]6,437	Site	14,000.0
Do	Mar. 4, 1913	[3]6,437	Building	100,000.0
Douglas, Ga	.....do	4,406	Site and building	55,000.0
Douglas, Wyo	May 30, 1908	1,959	Site	8,000.0
Do	June 25, 1910	2,276	Building	65,000.0
Dover, Del	Feb. 21, 1873	2,151	Site and building	61,819.4
Dover, N. H	June 30, 1906	13,231	.....do	92,896.1
Dowagiac, Mich	June 25, 1910	5,107	Site	10,000.0
Do	Mar. 4, 1913	5,362	Building	55,000.0

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[1] Decrease 1900-1910.

[2] Population Apr. 15, 1910. Decrease 1900-1910.

[3] Population Apr. 15, 1910. Not s
turned in 1900.

[4] Can not estimate. Not separately

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Dublin, Ga	May 30, 1908	5,260	Site and building	$64,000.00	Limit.
Dubois, Pa	June 25, 1910	12,687	Site	25,000.00	Total.
Do	Mar. 4, 1913	13,571	Building	85,000.00	Limit.
Dubuque, Iowa	Aug. 18, 1856	9,253	Site and building	194,687.50	Total.
Duluth, Minn	May 4, 1888	26,411	do	270,000.00	Do.
Dunkirk, N. Y	June 25, 1910	17,331	Site	20,000.00	Total.
Duquoin, Ill	May 30, 1908	5,245	do	8,000.00	Do.
Do	June 25, 1910	5,475	Building	57,000.00	Limit.
Durango, Colo	do	4,713	Site	10,000.00	Total.
Do	Mar. 4, 1913	5,086	Building	100,000.00	Limit.
Durant, Okla	do	6,019	Site and building	80,000.00	Do.
Durham, N. C	June 6, 1902	9,036	do	99,685.61	Total.
Dyersburg, Tenn	May 30, 1908	4,054	do	50,000.00	Limit.
Eagle Pass, Tex	June 30, 1906	[1] 3,536	do	75,000.00	Do.
East Las Vegas, N. Mex	Mar. 4, 1913	[2] 3,813	do	125,000.00	Do.
East Liverpool, Ohio	Mar. 3, 1903	17,933	Site	29,991.51	Total.
Do	June 30, 1906	19,079	Building	96,177.18	Do.
Easton, Pa	June 6, 1902	25,886	Site and building	205,000.00	Limit.
East Orange, N. J	June 25, 1910	34,621	Site	48,696.22	Total.
Do	Mar. 4, 1913	38,129	Building	125,000.00	Limit.
East Pittsburgh, Pa	June 25, 1910	5,669	Site and building	100,000.00	Do.
Eastport, Me	Jan. 17, 1887	4,604	do	117,971.70	Total.
East St. Louis, Ill	June 30, 1906	48,667	do	324,780.77	Do.
Eatonton, Ga	Mar. 4, 1913	2,097	Site	5,000.00	Limit.
Eau Claire, Wis	Mar. 2, 1899	17,505	Site and building	159,973.00	Total.
Edenton, N. C	Mar. 4, 1913	[3] 2,789	Site	7,500.00	Limit.
Edwardsville, Ill	June 25, 1910	5,030	Site and building	70,000.00	Do.
Elberton, Ga	May 30, 1908	5,979	Site	7,500.00	Total.
Do	June 25, 1910	6,535	Building	57,500.00	Limit.
El Dorado, Ark	Mar. 4, 1913	5,116	Site	5,000.00	Do.
Eldorado, Kans	do	[3] 3,129	Site and building	60,000.00	Do.
Elgin, Ill	Mar. 2, 1899	21,858	do	99,164.38	Total.
Elizabeth, N. J	June 6, 1902	56,419	do	250,000.00	Do.
Elizabeth City, N. C	Mar. 2, 1899	5,962	do	139,067.30	Do.
Elizabethton, Tenn	Mar. 4, 1913	[1] 2,478	Site	2,500.00	Limit.
Elizabethtown, Ky	do	1,999	do	7,500.00	Do.
Elkhart, Ind	June 6, 1902	16,020	Site and building	84,809.82	Total.
Elkins, W. Va	May 30, 1908	4,643	Site	10,000.00	Do.
Do	June 25, 1910	5,324	Building	135,000.00	Limit.
Ellensburg, Wash	do	4,258	Site	7,000.00	Total.
Do	Mar. 4, 1913	4,930	Building	75,000.00	Limit.
Ellsworth, Me	Aug. 4, 1854	4,279	Site and building	23,060.87	Total.
Elmira, N. Y	Mar. 2, 1899	35,076	do	230,956.80	Do.
El Paso, Tex	June 30, 1886	6,504	do	207,000.00	Do.
Do	June 25, 1910	39,745	Site	60,000.00	Limit.
Do	Mar. 4, 1913	46,284	Building	300,000.00	Do.
El Reno, Okla	June 25, 1910	7,960	Site and building	100,000.00	Do.
Elkwood, Ind	May 30, 1908	11,361	do	75,000.00	Do.
Elyria, Ohio	June 25, 1910	14,942	Site	25,000.00	Total.
Do	Mar. 4, 1913	16,586	Building	100,000.00	Limit.
Eminence, Ky	do	1,318	Site	8,000.00	Do.
Emporia, Kans	Mar. 3, 1891	7,602	do	9,802.59	Total.
Do	June 6, 1902	8,392	Building	50,000.00	Do.
Enid, Okla	May 30, 1908	11,827	Building (on Government reservation).	99,901.98	Do.
Ennis, Tex	June 25, 1910	5,683	Site and building	60,000.00	Limit.
Ensley, Ala	May 30, 1908	[4] 2,100	do	59,962.85	Total.
Erie, Pa	June 27, 1882	30,408	do	260,247.95	Do.
Escanaba, Mich	June 30, 1906	11,794	do	64,000.00	Limit.
Estherville, Iowa	do	3,338	Site	5,535.08	Total.
Do	May 30, 1908	3,371	Building	59,989.62	Do.
Eufaula, Ala	do	[5] 4,312	Site and building	50,000.00	Limit.
Eugene, Oreg	June 30, 1906	6,790	do	70,000.00	Do.
Eureka, Cal	do	10,108	do	141,196.02	Total.
Eureka, Utah	Mar. 4, 1913	3,513	do	50,000.00	Limit.
Eureka Springs, Ark	May 30, 1908	[5] 3,293	Site	7,500.00	Total.
Do	June 25, 1910	[3] 3,228	Building	50,000.00	Limit.
Evanston, Ill	June 6, 1902	20,425	Site and building	89,881.50	Total.
Evanston, Wyo	do	2,205	do	181,802.70	Do.
Evansville, Ind	Mar. 3, 1873	23,881	do	334,377.67	Do.
Everett, Wash	May 30, 1908	21,583	do	180,000.00	Limit.
Excelsior Springs, Mo	June 25, 1910	3,940	do	60,000.00	Do.
Fairbury, Nebr	May 30, 1908	4,883	do	70,000.00	Do.
Fairfield, Iowa	Mar. 4, 1913	5,051	Site	10,000.00	Do.
Fairmont, Minn	do	[3] 2,958	Site and building	65,000.00	Do.

[1] Population Apr. 15, 1910. Not separately returned in 1900.

[2] Not separately returned. Estimate for Las Vegas.

[3] Population Apr. 15, 1910. Decrease 1900–1910.

[4] Population June 1, 1900; can not estimate, annexed to Birmingham in 1910.

[5] Decrease 1900–1910.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Fairmont, W. Va	June 30, 1906	8,153	Site and building	$125,000.00	Limit.
Fallon, Nev	Mar. 4, 1913	[1] 741	do	55,000.00	Do.
Fall River, Mass	May 21, 1872	31,137	do	523,527.71	Total.
Falls City, Nebr	June 25, 1910	3,259	Site	5,700.00	Do.
Do	Mar. 4, 1913	3,322	Building	65,000.00	Limit.
Falmouth, Ky	do	1,192	Site	5,000.00	Total.
Fargo, N. Dak	Dec. 27, 1890	5,889	Site and building	100,000.00	Do.
Do	Mar. 4, 1913	15,715	Site	23,500.00	Do.
Fairbault, Minn	May 30, 1908	8,785	Site and building	69,996.79	Do.
Farmington, Mo	Mar. 4, 1913	2,855	Site	5,000.00	Limit.
Farmville, Va	do	3,116	Site and building	60,000.00	Do.
Fayette, Mo	do	[2] 2,586	do	55,000.00	Do.
Fayetteville, Ark	June 30, 1906	4,311	do	60,000.00	Do.
Fayetteville, N. C	do	6,131	do	69,981.68	Total.
Fayetteville, Tenn	June 25, 1910	3,453	do	50,000.00	Limit.
Fergus Falls, Minn	Mar. 2, 1889	5,785	do	114,485.27	Total.
Fernandina, Fla	June 30, 1906	3,391	do	100,000.00	Limit.
Findlay, Ohio	June 6, 1902	17,013	do	54,730.22	Total.
Fitchburg, Mass	Mar. 2, 1899	30,342	do	129,219.37	Do.
Fitzgerald, Ga	Mar. 4, 1913	6,955	do	75,000.00	Limit.
Flint, Mich	June 6, 1902	18,617	do	89,885.21	Total.
Florence, Ala	Mar. 3, 1903	6,537	Site	6,043.49	Do.
Do	June 30, 1906	6,606	Building	120,000.00	Limit.
Florence, S. C	June 6, 1902	5,139	Site and building	100,000.00	Total.
Fond du Lac, Wis	do	15,862	do	65,000.01	Do.
Fordyce, Ark	June 25, 1910	2,815	Site	5,000.00	Do.
Do	Mar. 4, 1913	3,109	Building	50,000.00	Limit.
Forrest City, Ark	do	2,812	Site	5,000.00	Do.
Forsyth, Ga	do	2,510	do	5,000.00	Do.
Fort Atkinson, Wis	June 25, 1910	3,893	Site and building	60,000.00	Do.
Fort Collins, Colo	May 30, 1908	7,228	do	99,893.74	Total.
Fort Dodge, Iowa	Jan. 21, 1891	12,628	do	76,500.00	Do.
Fort Fairfield, Me	Mar. 4, 1913	1,664	do	80,000.00	Limit.
Fort Madison, Iowa	May 30, 1908	[3] 8,967	Site	10,000.00	Total.
Do	June 25, 1910	[3] 8,900	Building	64,928.81	Do.
Fort Morgan, Colo	do	2,843	Site	9,785.00	Do.
Do	Mar. 4, 1913	3,432	Building	60,000.00	Limit.
Fort Plain, N. Y	do	2,820	Site and building	65,000.00	Do.
Fort Scott, Kans	Mar. 3, 1885	8,495	do	109,477.38	Total.
Fort Smith, Ark	Mar. 16, 1886	7,862	Building (on Government reservation).	115,933.23	Do.
Fort Wayne, Ind	Aug. 8, 1882	28,740	Site and building	230,695.63	Do.
Fort Worth, Tex	Mar. 2, 1889	21,025	do	214,997.70	Do.
Frankfort, Ind	May 30, 1908	8,340	Site	10,500.00	Do.
Do	June 25, 1910	8,664	Building	70,000.00	Limit.
Frankfort, Ky	Apr. 26, 1882	7,132	Site and building	131,236.15	Total.
Franklin, La	May 30, 1908	3,636	do	50,000.00	Limit.
Franklin, N. H	Mar. 4, 1913	6,215	do	90,000.00	Do.
Franklin, Pa	do	10,482	do	100,000.00	Do.
Franklin, Tenn	do	3,141	do	55,000.00	Do.
Franklin, Va	June 25, 1910	2,293	Site	5,000.00	Total.
Do	Mar. 4, 1913	2,601	Building	45,000.00	Limit.
Frederick, Md	June 25, 1910	10,433	Site	23,000.00	Total.
Do	Mar. 4, 1913	10,736	Building	90,000.00	Limit.
Frederick, Okla	do	4,050	Site	10,000.00	Do.
Fredericksburg, Va	June 30, 1906	5,563	Site and building	59,922.88	Total.
Freeport, Ill	Mar. 2, 1899	12,875	do	85,000.00	Do.
Fremont, Nebr	May 5, 1890	6,719	do	60,015.00	Do.
Fremont, Ohio	June 25, 1910	9,969	Site	12,000.00	Do.
Do	Mar. 4, 1913	10,377	Building	100,000.00	Limit.
Fresno, Cal	June 6, 1902	14,321	Site and building	149,981.02	Total.
Front Royal, Va	Mar. 4, 1913	1,170	do	50,000.00	Limit.
Frostburg, Md	May 30, 1908	5,885	do	50,000.00	Do.
Fulton, Ky	June 25, 1910	[1] 2,575	do	50,000.00	Do.
Fulton, Mo	do	5,234	do	60,000.00	Do.
Fulton, N. Y	May 30, 1908	10,046	Site	10,000.00	Total.
Do	June 25, 1910	10,524	Building	75,000.00	Limit.
Gadsden, Ala	June 30, 1906	7,622	Site and building	95,000.00	Total.
Gaffney, S. C	May 30, 1908	4,609	do	59,922.47	Do.
Gainesville, Fla	June 6, 1902	4,153	do	148,967.38	Do.
Gainesville, Ga	Mar. 3, 1903	4,812	Site	4,986.36	Do.
Do	June 30, 1906	5,331	Building	64,855.63	Do.
Gainesville, Tex	June 6, 1902	[1] 7,824	Site and building	72,495.58	Do.
Galena, Ill	Aug. 18, 1856	7,365	do	77,872.44	Do.

[1] Population Apr. 15, 1910. Not separately returned in 1900.

[2] Population Apr. 15, 1910. Decrease 1900-1910.

[3] Decrease 1900-1910.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Galesburg, Ill	Apr. 26, 1890	15,227	Site and building	$82,500.00	Limit.
Gallatin, Tex	Mar. 4, 1913	[1] 2,399	do	50,000.00	Limit.
Gallipolis, Ohio	do	5,506	do	75,000.00	Do.
Galveston, Tex	May 25, 1882	23,603	do	275,118.10	Total.
Garden City, Kans	June 25, 1910	3,202	do	66,050.00	Limit.
Gardiner, Me	May 30, 1908	[2] 5,349	Site	22,000.00	Total.
Do	June 25, 1910	[1] 5,311	Building	83,000.00	Limit.
Gary, Ind	do	[3] 16,802	Site and building	125,000.00	Do.
Gastonia, N. C	May 30, 1908	5,539	Site and building	85,000.00	Limit.
Geneseo, Ill	Mar. 4, 1913	3,153	do	60,000.00	Do.
Geneva, N. Y	June 6, 1902	10,842	do	74,917.20	Total.
Georgetown, Ky	June 25, 1910	4,546	do	90,000.00	Limit.
Georgetown, S. C	June 6, 1902	4,422	do	65,000.00	Total.
Georgetown, Tex	Mar. 4, 1913	3,183	Site	5,000.00	Do.
Gettysburg, Pa	May 30, 1908	3,928	do	24,000.00	Do.
Do	June 25, 1910	4,041	Building	117,000.00	Limit.
Gilmer, Tex	Mar. 4, 1913	1,484	Site and building	55,000.00	Do.
Girard, Kans	do	[1] 2,446	do	75,000.00	Do.
Glasgow, Ky	do	2,403	do	60,000.00	Do.
Glens Falls, N. Y	June 25, 1910	15,294	do	100,000.00	Do.
Glenwood, Iowa	Mar. 4, 1913	4,347	do	50,000.00	Do.
Glenwood Springs, Colo	do	2.213	do	100,000.00	Do.
Globe, Ariz	June 25, 1910	[3] 7,083	Site	15,000.00	Total.
Do	Mar. 4, 1913	[3] 7,083	Building	100,000.00	Limit.
Gloucester, Mass	Aug. 4, 1854	9,088	Site and building	49,858.32	Total.
Gloversville, N. Y	June 6, 1902	18,816	do	80,884.77	Do.
Goldfield, Nev	May 30, 1908	(4)	do	75,000.00	Limit.
Goldsboro, N. C	June 6, 1902	5,928	do	50,000.00	Total.
Gonzales, Tex	June 30, 1906	[2] 3,585	do	50,000.00	Limit.
Goshen, Ind	May 30, 1908	8,379	do	70,000.00	Do.
Gouveneur, N. Y	June 25, 1910	4,137	do	70,000.00	Do.
Grafton, W. Va	June 30, 1906	6,827	Site	24,026.20	Total.
	June 25, 1910	7,601	Building	135,000.00	Limit.
Grand Forks, N. Dak	June 6, 1902	8,636	Site and building	155,495.94	Total.
Grand Haven, Mich	do	4,969	do	50,000.00	Do.
Grand Island, Nebr	Mar. 3, 1903	8,327	Site	9,585.41	Do.
Do	June 30, 1906	9,260	Building	121,557.49	Do.
Grand Junction, Colo	May 30, 1908	6,946	Site	9,800.00	Do.
Do	June 25, 1910	7,826	Building	175,000.00	Limit.
Grand Rapids, Mich	June 30, 1906	102,968	Building (on old site)	502,436.71	Total.
Granite City, Ill	May 30, 1908	8,613	Site and building	80,000.00	Limit.
Grass Valley, Cal	do	4,557	Site	10,000.00	Total.
Do	June 25, 1910	[5] 4,520	Building	55,000.00	Limit.
Great Bend, Kans	May 30, 1908	4,212	Site and building	59,991.98	Total
Great Falls, Mont	June 30, 1906	14,327	do	213,052.89	Do.
Greeley, Colo	May 30, 1908	7,198	Site	15,000.00	Do.
Do	June 25, 1910	8,281	Building	110,000.00	Limit.
Green Bay, Wis	June 6, 1902	20,021	Site and building	177,858.41	Total.
Greencastle, Ind	June 30, 1906	3,740	Site	8,971.05	Do.
Do	May 30, 1908	3,765	Building	49,943.46	Do.
Greeneville, Tenn	June 6, 1902	1,837	Site and building	109,568.31	Do.
Greenfield, Mass	June 25, 1910	10,476	do	100,000.00	Limit.
Green River, Wyo	do	[5] 1,313	Site	6,000.00	Total.
Greensboro, N. C	May 25, 1882	2,345	Site and building	66,038.23	Do.
Greensburg, Ind	Mar. 4, 1913	5,534	Site	12,000.00	Limit.
Greensburg, Pa	June 30, 1906	11,532	do	24,971.82	Total.
Do	May 30, 1908	12,277	Building	100,000.00	Limit.
Greenville, Ala	Mar. 4, 1913	3,438	Site	5,000.00	Do.
Greenville, Ill	May 30, 1908	3,048	Site and building	63,612.72	Total.
Greenville, Miss	June 30, 1906	8,853	do	72,757.34	Do.
Greenville, N. C	May 30, 1908	3,808	Site	9,500.00	Do.
Do	June 25, 1910	4,131	Building	55,000.00	Limit.
Greenville, Ohio	June 30, 1906	5,952	Site and building	34,962.03	Total.
Greenville, S. C	May 1, 1888	8,098	do	98,851.62	Do.
Greenville, Tex	June 30, 1906	8,084	do	69,944.40	Do.
Greenwich, Conn	do	3,323	Site	20,000.00	Do.
Do	Mar. 4, 1913	4,314	Building	90,000.00	Limit.
Greenwood, Miss	May 30, 1908	5,301	Site and building	60,000.00	Do.
Greenwood, S. C	June 30, 1906	5,925	do	54,522.39	Total.
Grenada, Miss	June 25, 1910	2,818	do	50,000.00	Limit.
Griffin, Ga	June 30, 1906	7,239	Site	6,522.52	Total.
Do	May 30, 1908	7,359	Building	59,997.81	Do.
Grinnell, Iowa	June 25, 1910	5,059	Site	15,000.00	Do.
Do	Mar. 4, 1913	5,375	Building	90,000.00	Limit.
Gulfport, Miss	June 30, 1906	4,340	Site and building	140,000.00	Do.

[1] Population Apr. 15, 1910. Decrease 1900–1910.

[2] Decrease 1900–1910.

[3] Population Apr. 15, 1910. Not separately returned in 1900.

[4] Not separately returned.

[5] Population Apr. 15, 1910. Decrease since 1900.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Guthrie, Okla	June 6, 1902	10,117	Site and building	$127,349.35	Total.
Hackensack, N. J	June 25, 1910	14,159	Site	25,000.00	Do.
Do	Mar. 4, 1913	15,395	Building	100,000.00	Limit.
Hagerstown, Md	Mar. 3, 1903	14,405	Site	22,999.83	Total.
Do	June 30, 1906	15,386	Building	61,855.66	Do.
Hallowell, Me	June 25, 1910	2,867	Site	6,500.00	Do.
Hamilton, Ohio	June 6, 1902	25,344	do	19,976.01	Do.
Do	June 30, 1906	28,233	Building	98,162.20	Do.
Hammond, Ind	June 6, 1902	14,004	Site and building	145,000.00	Do.
Hammond, La	June 25, 1910	2,970	Site	5,000.00	Do.
Do	Mar. 4, 1913	3,300	Building	50,000.00	Limit.
Hampton, Va	June 25, 1910	5,559	Site and building	80,000.00	Do.
Hanford, Cal	do	4,833	do	75,000.00	Do.
Hannibal, Mo	May 5, 1882	11,417	do	135,991.78	Total.
Hanover, Pa	June 25, 1910	7,092	do	110,000.00	Limit.
Harriman, Tenn	May 30, 1908	[1] 3,133	do	55,000.00	Do.
Harrisburg, Ill	do	4,718	Site	7,500.00	Total.
Do	June 25, 1910	5,309	Building	60,000.00	Limit.
Harrisburg, Pa	Mar. 3, 1875	26,744	Site	110,927.88	Total.
Do	Mar. 3, 1877	28,275	Building	290,056.44	Do.
Harrison, Ark	June 6, 1902	1,561	Site and building	99,790.35	Do.
Harrisonburg, Va	July 7, 1882	2,824	do	112,387.34	Do.
Harrisonville, Mo	Mar. 4, 1913	1,976	do	52,500.00	Limit.
Harrodsburg, Ky	do	3,225	Site	10,000.00	Do.
Hartford, Conn	Mar. 18, 1872	38,049	Building (site donated)	846,802.74	Total.
Hastings, Mich	Mar. 4, 1913	4,735	Site and building	81,000.00	Limit.
Hastings, Nebr	Mar. 2, 1899	[2] 7,987	Site	9,568.24	Total.
Do	June 6, 1902	7,625	Building	124,766.63	Do.
Hattiesburg, Miss	June 30, 1906	8,829	Site	14,966.38	Do.
Do	May 30, 1908	10,295	Building	74,854.70	Do.
Havana, Ill	Mar. 4, 1913	3,600	Site	10,000.00	Limit.
Haverhill, Mass	Jan. 21, 1891	28,038	Site and building	83,000.00	Total.
Hazleton, Pa	June 30, 1906	16,258	do	72,919.64	Do.
Helena, Ark	Apr. 11, 1888	4,859	do	85,000.00	Do.
Helena, Mont	Mar. 2, 1895	12,380	do	349,826.97	Do.
Henderson, Ky	June 6, 1902	10,512	do	49,406.89	Do.
Henderson, N. C	June 30, 1906	4,206	Site	7,014.55	Do.
Do	May 30, 1908	4,364	Building	60,000.00	Limit.
Hendersonville, N. C	June 25, 1910	2,836	Site and building	70,000.00	Do.
Hiawatha, Kans	do	2,977	Site	6,000.00	Total.
Do	Mar. 4, 1913	3,014	Building	60,000.00	Limit.
Hickory, N. C	May 30, 1908	3,490	Site	8,000.00	Total.
Do	June 25, 1910	3,739	Building	60,000.00	Limit.
Highland, Ill	Mar. 4, 1913	2,883	Site	7,000.00	Do.
Highpoint, N. C	June 30, 1906	7,463	do	9,988.15	Total.
Do	May 30, 1908	8,503	Building	65,000.00	Limit.
Hillsboro, Tex	do	5,968	Site and building	70,000.00	Do.
Hillsdale, Mich	do	4,839	do	64,845.63	Total.
Hilo, Hawaii	June 25, 1910	[3] 6,745	Building (on Government reservation).	200,000.00	Limit.
Hinton, W. Va	June 30, 1906	[1] 3,698	Site	5,027.70	Total.
Do	May 30, 1908	[1] 3,677	Building	50,000.00	Limit.
Hobart, Okla	Mar. 4, 1913	4,576	Site	10,000.00	Total.
Hoboken, N. J	June 18, 1888	41,180	Site and building	75,472.27	Do.
Hodgenville, Ky	Mar. 4, 1913	[4] 744	Site	5,000.00	Limit.
Holdrege, Nebr	May 30, 1908	3,025	Site and building	80,000.00	Do.
Holland, Mich	June 25, 1910	10,543	do	100,000.00	Do.
Hollidaysburg, Pa	Mar. 4, 1913	3,949	do	80,000.00	Do.
Holly Springs, Miss	June 25, 1910	2,199	Site	6,500.00	Total.
Do	Mar. 4, 1913	2,302	Building	43,500.00	Limit.
Holton, Kans	June 25, 1910	[4] 2,842	Site	4,500.00	Total.
Holyoke, Mass	June 6, 1902	48,164	Site and building	133,530.94	Do.
Homestead, Pa	May 30, 1908	17,605	do	100,000.00	Limit.
Honey Grove, Tex	Mar. 4, 1913	[4] 2,300	do	50,000.00	Do.
Honolulu, Hawaii	June 30, 1906	47,236	Site	275,000.00	Do.
Do	May 30, 1908	49,734	Building	1,050,000.00	Do.
Hoopeston, Ill	Mar. 4, 1913	4,963	Site and building	70,000.00	Do.
Hoosick Falls, Mass	do	[4] 5,532	do	80,000.00	Do.
Hope, Ark	May 30, 1908	3,259	do	49,955.38	Total.
Hopkinsville, Ky	do	9,013	Site	12,000.00	Do.
Do	June 25, 1910	9,460	Building	85,000.00	Limit.
Hornell, N. Y	May 30, 1908	13,293	Site	11,000.00	Total.
Do	Mar. 4, 1913	14,113	Building	85,000.00	Limit.
Hot Springs, Ark	Mar. 2, 1899	9,738	Building (on Government reservation).	97,967.70	Total.

[1] Decrease 1900–1910.
[2] Decrease 1890–1900.
[3] Population Apr. 15, 1910. Not separately returned in 1900.
[4] Population Apr. 15, 1910. Decrease 1900–1910.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Houghton, Mich	Mar. 4, 1913	5,624	Site and building	$100,000.00	Limit.
Houlton, Me	Mar. 27, 1890	3,873	do	66,060.00	Total.
Houston, Tex	Feb. 24, 1887	23,949	do	89,934.12	Do.
Do	Mar. 3, 1903	53,607	Site	120,142.95	Do.
Do	June 30, 1906	66,446	Building	399,895.29	Do.
Hudson, N. Y	do	10,690	Site and building	75,000.00	Limit.
Humboldt, Tenn	June 25, 1910	3,457	Site	4,000.00	Total.
Do	Mar. 4, 1913	3,613	Building	50,000.00	Limit.
Huntingdon, Pa	June 25, 1910	6,877	Site and building	80,000.00	Do.
Huntingdon, Tenn	Mar. 4, 1913	[1] 1,112	Site	2,500.00	Do.
Huntington, Ind	June 25, 1910	10,281	do	20,000.00	Total.
Do	Mar. 4, 1913	10,412	Building	95,000.00	Limit.
Huntington, W. Va	June 6, 1902	14,726	Site and building	154,435.07	Total.
Huntsville, Ala	Feb. 24, 1887	7,007	do	99,829.47	Do.
Huntsville, Tex	June 25, 1910	[1] 2,072	Site	5,000.00	Do.
Huron, S. Dak	May 30, 1908	5,220	Site and building	105,922.45	Do.
Hutchinson, Kans	June 6, 1902	10,803	do	59,627.94	Do.
Idaho Falls, Idaho	June 25, 1910	4,897	do	100,000.00	Limit.
Independence, Kans	May 30, 1908	9,408	do	75,000.00	Do.
Independence, Mo	June 30, 1906	8,750	Site	14,685.89	Total.
Do	May 30, 1908	9,308	Building	75,314.11	Limit.
Indiana, Pa	Mar. 4, 1913	6,218	Site and building	90,000.00	Do.
Indianapolis, Ind	Mar. 1, 1899	161,186	do	2,616,500.14	Total.
Iola, Kans	June 30, 1906	7,786	do	59,999.55	Do.
Ionia, Mich	May 30, 1908	[2] 5,065	do	69,983.62	Do.
Iowa City, Iowa	June 6, 1902	8,416	do	60,000.00	Do.
Iowa Falls, Iowa	May 30, 1908	[2] 2,830	Site	1.00	Do.
Do	June 25, 1910	[1] 2,797	Building	50,000.00	Limit.
Ironton, Ohio	May 30, 1908	12,903	Site and building	89,702.50	Total.
Ishpeming, Mich	June 25, 1910	[1] 12,448	do	75,000.00	Limit.
Ithaca, N. Y	June 6, 1902	13,475	do	101,972.44	Total.
Jackson, Ky	June 25, 1910	1,354	do	100,000.00	Limit.
Jackson, Mich	Aug. 21, 1888	19,938	do	105,000.00	Total.
Jackson, Miss	Mar. 2, 1881	5,258	do	114,967.08	Do.
Jackson, Ohio	June 25, 1910	5,584	Site	10,000.00	Do.
Jackson, Tenn	May 19, 1882	6,292	Site and building	67,789.94	Do.
Jacksonville, Fla	July 29, 1886	13,536	do	278,469.57	Do.
Jacksonville, Ill	June 6, 1902	15,128	do	58,739.55	Do.
Jamestown, N. Y	Mar. 2, 1899	22,036	do	149,919.46	Do.
Jamestown, N. Dak	June 25, 1910	4,387	Site	7,500.00	Do.
Do	Mar. 4, 1913	4,797	Building	75,000.00	Limit.
Janesville, Wis	Mar. 2, 1899	12,893	Site and building	81,000.00	Total.
Jasper, Ala	June 25, 1910	2,525	Site	6,500.00	Do.
Do	Mar. 4, 1913	2,756	Building	100,000.00	Limit.
Jefferson, Tex	Feb. 9, 1887	[3] 3,135	Site and building	52,877.30	Total.
Jefferson City, Mo	Mar. 3, 1883	5,671	do	153,473.23	Do.
Jeffersonville, Ind	June 30, 1906	[2] 10,552	Site	9,981.29	Do.
Do	May 30, 1908	[2] 10,481	Building	65,000.00	Limit.
Jellico, Tenn	June 25, 1910	1,873	Site	10,000.00	Total.
Do	Mar. 4, 1913	2,029	Building	70,000.00	Limit.
Jennings, La	June 25, 1910	3,971	Site and building	50,000.00	Do.
Jersey City, N. J	Mar. 3, 1873	93,056	do	71,383.05	Total.
Do	June 30, 1906	244,223	Site	454,625.57	Do.
Do	May 30, 1908	256,103	Building	595,374.43	Limit.
Jerseyville, Ill	Mar. 4, 1913	4,287	Site and building	65,000.00	Do.
Johnson City, Tenn	June 30, 1906	7,029	do	67,046.40	Total.
Johnstown, N. Y	do	10,325	Site	14,743.51	Do.
Do	June 25, 1910	10,454	Building	75,000.00	Limit.
Johnstown, Pa	June 6, 1902	40,541	Site	80,833.75	Total.
Do	June 30, 1906	48,210	Building	129,166.25	Limit.
Joliet, Ill	Mar. 2, 1899	28,593	Site and building	124,839.40	Total.
Jonesboro, Ark	May 30, 1908	6,626	do	79,997.71	Do.
Joplin, Mo	Mar. 2, 1899	24,015	do	149,200.51	Do.
Juneau, Alaska	June 25, 1910	[1] 1,644	do	200,000.00	Limit.
Kalamazoo, Mich	Mar. 1, 1889	17,113	do	74,965.67	Total.
Kalispell, Mont	June 25, 1910	5,608	Site	15,000.00	Do.
Do	Mar. 4, 1913	6,432	Building	100,000.00	Limit.
Kankakee, Ill	June 6, 1902	13,673	Site and building	80,088.67	Total.
Kansas City, Kans	Mar. 2, 1899	49,782	do	140,863.00	Do.
Kansas City, Mo	Jan. 2, 1891	134,544	do	1,351,628.90	Do.
Kearney, Nebr	June 30, 1906	5,982	do	110,000.00	Limit.
Keene, N. H	do	9,719	Site	19,974.90	Total.
Do	May 30, 1908	9,897	Building	74,883.07	Do.
Kendallville, Ind	Mar. 4, 1913	5,455	Site and building	75,000.00	Limit.
Kenosha, Wis	June 30, 1906	17,751	do	70,561.51	Total.
Kenton, Ohio	Mar. 4, 1913	7,280	do	80,000.00	Limit.

[1] Population Apr. 15, 1910, Decrease 1900-1910.
[2] Decrease 1900-1910.
[3] Decrease 1880-1890.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Keokuk, Iowa	Feb. 25, 1885	13,056	Site and building	$162,181.11	Total.
Kewanee, Ill	June 30, 1906	8,561	....do	63,412.38	Do.
Key West, Fla	Feb. 28, 1885	13,712	Building (old customhouse site).	107,955.96	Do.
Do	Mar. 4, 1913	20,771	Site	80,000.00	Limit.
Kingfisher, Okla	June 25, 1910	2,542	Building (on Government reservation).	45,000.00	Do.
Kingston, N. Y	June 6, 1902	24,814	Site and building	109,504.29	Total.
Kinston, N. C	June 30, 1906	5,884	....do	90,000.00	Limit.
Kirksville, Mo	June 6, 1902	6,043	....do	40,000.00	Total.
Kissimmee, Fla	Mar. 4, 1913	2,456	Site	5,000.00	Do.
Kittannng, Pa	May 30, 1908	4,232	....do	15,000.00	Do.
Knoxville, Tenn	Aug. 18, 1856	4,126	Site and building	348,593.12	Do.
Kokomo, Ind	June 30, 1906	14,088	Site	14,969.05	Do.
Do	May 30, 1908	15,382	Building	74,956.76	Do.
Laconia, N. H	June 25, 1910	10,225	Site	9,000.00	Do.
Do	Mar. 4, 1913	10,807	Building	75,000.00	Limit.
La Crosse, Wis	Feb. 28, 1885	19,525	Site and building	146,983.14	Total.
Lafayette, Ind	May 16, 1890	16,237	....do	80,000.00	Do.
Lafayette, La	May 30, 1908	5,806	Site	15,000.00	Do.
Do	June 25, 1910	6,453	Building	50,000.00	Limit.
La Grande, Oreg	May 30, 1908	4,490	Site and building	64,706.35	Total.
Lagrange, Ga	....do	5,337	....do	59,969.87	Do.
La Junta, Colo	June 25, 1910	4,187	....do	85,000.00	Limit.
Lake Charles, La	June 30, 1906	9,617	....do	124,942.78	Total.
Lake City, Fla	Mar. 4, 1913	5,329	Site	6,000.00	Do.
Lake City, Minn	June 25, 1910	3,150	Site and building	55,000.00	Limit.
Lakeland, Fla	Mar. 4, 1913	4,460	....do	75,000.00	Do.
Lamar, Mo	....do	[1] 2,316	Site	7,000.00	Total.
Lancaster, Ky	June 25, 1910	[1] 1,507	....do	5,000.00	Do.
Do	Mar. 4, 1913	[1] 1,507	Building	55,000.00	Limit.
Lancaster, Ohio	June 30, 1906	11,516	Site and building	75,000.00	Do.
Lancaster, Pa	May 9, 1888	30,723	....do	99,887.83	Total.
Do	Mar. 4, 1913	48,885	Site	138,278.78	Limit.
Lancaster, S. C	....do	2,277	Site and building	50,000.00	Do.
Lander, Wyo	June 30, 1906	1,368	Site	6,043.97	Total.
Do	May 30, 1908	1,607	Building	115,000.00	Limit.
Lansing, Mich	Mar. 19, 1890	13,006	Site and building	124,919.36	Total.
Laporte, Ind	May 30, 1908	9,873	....do	70,000.00	Do.
Laramie, Wyo	June 6, 1902	8,213	....do	99,603.14	Do.
Laredo, Tex	....do	13,719	....do	155,968.30	Do.
La Salle, Ill	May 30, 1908	11,328	....do	100,000.00	Limit.
Las Cruces, N. Mex	June 25, 1910	[2] 3,836	Site	15,000.00	Total.
Do	Mar. 4, 1913	[2] 3,836	Building	125,000.00	Limit.
Laurel, Miss	May 30, 1908	7,462	Site	8,000.00	Total.
Do	June 25, 1910	8,569	Building	80,000.00	Limit.
Laurens, S. C	May 30, 1908	4,669	Site and building	60,000.00	Do.
Lawrence, Kans	June 6, 1902	11,170	....do	59,504.26	Total.
Lawrence, Mass	Mar. 2, 1899	60,723	....do	135,000.00	Do.
Lawrenceburg, Ky	May 30, 1908	1,633	Site	7,200.00	Do.
Do	June 25, 1910	1,732	Building	50,000.00	Limit.
Lawton, Okla	May 29, 1908	6,287	Site and building	215,096.28	Do.
Lead, S. Dak	June 30, 1906	7,554	....do	100,000.00	Do.
Leadville, Colo	Mar. 2, 1899	12,196	....do	83,554.31	Total.
Leavenworth, Kans	Aug. 7, 1882	17,249	....do	196,210.65	Do.
Lebanon, Ind	Mar. 4, 1913	5,768	Site	10,000.00	Limit.
Lebanon, Ky	June 30, 1906	3,061	Site and building	55,000.00	Total.
Lebanon, Mo	Mar. 4, 1913	2,518	Site	6,800.00	Do.
Lebanon, Pa	June 6, 1902	17,956	Site and building	75,000.00	Do.
Lebanon, Tenn	May 30, 1908	3,336	Site	4,000.00	Do.
Do	June 25, 1910	3,692	Building	50,000.00	Limit.
Leesburg, Va	Mar. 4, 1913	1,620	Site and building	55,000.00	Do.
Le Mars, Iowa	May 30, 1908	4,154	Site	3,000.00	Total.
Do	June 25, 1910	4,157	Building	50,000.00	Limit.
Lenoir, N. C	Mar. 4, 1913	3,968	Site	8,000.00	Do.
Leominster, Mass	....do	19,093	Site and building	90,000.00	Do.
Lewes, Del	May 30, 1908	[3] 2,179	Site	4,990.00	Total.
Do	June 25, 1910	[1] 2,158	Building	40,000.00	Limit.
Lewiston, Idaho	June 30, 1906	4,652	Site	9,074.40	Total.
Do	May 30, 1908	5,354	Building	85,000.00	Limit.
Lewiston, Me	Jan. 21, 1891	21,834	Site and building	84,499.00	Total.
Lewistown, Pa	Mar. 4, 1913	9,249	....do	75,000.00	Limit.
Lexington, Ky	Mar. 3, 1885	18,990	....do	145,260.14	Total.
Lexington, Mo	June 30, 1906	4,836	Site	7,465.90	Do.
Do	May 30, 1908	5,041	Building	44,966.11	Do.
Lexington, N. C	....do	3,604	Site and building	65,000.00	Limit.
Lexington, Va	....do	2,872	....do	60,000.00	Do.
Liberty, Mo	Mar. 4, 1913	3,148	....do	60,000.00	Do.

[1] Population Apr. 15, 1910. Decrease, 1900–1910.

[2] Population Apr. 15, 1910. Not separately returned in 1900.

[3] Decrease 1900–1910.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Lima, Ohio	Dec. 24, 1890	16,806	Site and building	$60,000.00	Total.
Lincoln, Ill	June 30, 1906	10,342	do	74,972.49	Do.
Lincoln, Nebr	Mar. 3, 1903	41,230	Building (on old site)	349,882.81	Do.
Linton, Ind	Mar. 4, 1913	6,734	Site	8,000.00	Limit.
Litchfield, Ill	June 30, 1906	5,948	do	7,018.42	Total.
Do	May 30, 1908	5,959	Building	60,000.00	Limit.
Little Falls, Minn	June 25, 1910	6,084	Site	5,000.00	Total.
Do	Mar. 4, 1913	6,166	Building	65,000.00	Limit.
Little Falls, N. Y	June 6, 1902	10,766	Site and building	84,999.36	Total.
Little Rock, Ark	June 7, 1872	12,531	do	251,120.18	Do.
Live Oak, Fla	May 30, 1908	3,107	Site	7,000.00	Do.
Do	June 25, 1910	3,485	Building	60,000.00	Limit.
Livingston, Mont	May 30, 1908	4,868	Site	14,500.00	Total.
Do	June 25, 1910	5,409	Building	75,000.00	Limit.
Lock Haven, Pa	Mar 4, 1913	7,936	Site and building	100,000.00	Do.
Lockport, N. Y	Mar. 3, 1899	16,513	do	105,000.00	Total.
Logan, Ohio	June 25, 1910	4,877	Site	12,500.00	Do.
Do	Mar. 4, 1913	5,248	Building	60,000.00	Limit.
Logan, Utah	June 30, 1906	6,724	Site and building	66,893.19	Total.
Logansport, Ind	June 6, 1902	16,784	do	75,000.00	Do.
London, Ky	June 30, 1906	1,447	do	105,000.00	Limit.
Long Beach, Cal	June 25, 1910	18,115	Site	40,000.00	Total.
Long Branch, N. J	do	13,375	Site and building	125,000.00	Limit.
Long Island City, N. Y	Mar. 4, 1913	322,290	do	200,000.00	Do.
Longview, Tex	June 25, 1910	5,185	do	50,000.00	Do.
Lorain, Ohio	do	29,133	do	150,000.00	Do.
Los Angeles, Cal	Jan. 29, 1887	37,309	do	1,[illegible]09,500.02	Total.
Louisiana, Mo	June 6, 1902	[1] 4,994	do	40,005.16	Do.
Louisville, Ky	May 25, 1882	131,231	do	1,241,646.67	Do.
Lowell, Mass	Apr. 9, 1888	73,787	do	200,000.00	Do.
Lumberton, N. C	June 25, 1910	2,257	Site	10,000.00	Do.
Lynchburg, Va	June 10, 1882	16,719	Site and building	134,408.35	Do.
Lynn, Mass	June 3, 1890	55,738	do	125,000.00	Do.
Lyons, N. Y	Mar. 4, 1913	4,506	Site	15,000.00	Limit.
Macomb, Ill	June 25, 1910	5,782	Site and building	70,000.00	Do.
Machias, Me	Mar. 2, 1867	([2])	do	25,766.00	Total.
Macon, Ga	Feb. 25, 1885	17,480	do	141,237.20	Do.
Macon, Mo	June 30, 1906	[1] 3,770	Site	6,517.50	Do.
Do	May 30, 1908	[1] 3,676	Building	63,500.00	Limit.
Madison, Ga	Mar. 4, 1913	2,533	Site	5,000.00	Do.
Madison, Ind	Dec. 24, 1890	[3] 8,874	Site and building	50,000.00	Total.
Madison, S. Dak	June 25, 1910	3,148	Site	6,000.00	Do.
Do	Mar. 4, 1913	3,307	Building	60,000.00	Limit.
Madison, Wis	Mar. 3, 1857	4,959	Site and building	349,968.69	Total.
Do	Mar. 4, 1913	28,726	Building (old site)	550,000.00	Limit.
Madisonville, Ky	do	5,356	Site	10,000.00	Do.
Malden, Mass	do	47,539	Building (site to be donated).	150,000.00	Do.
Malone, N. Y	June 30, 1906	6,261	Site	9,967.10	Total.
Do	May 30, 1908	6,365	Building	50,000.00	Limit.
Manassas, Va	Mar. 4, 1913	1,333	Site	5,000.00	Do.
Manchester, Conn	June 25, 1910	13,700	do	12,000.00	Total.
Manchester, N. H	Mar. 3, 1885	38,092	Site and building	251,899.02	Do.
Manchester, Va	June 30, 1906	10,117	do	57,860.26	Do.
Mandan, N. Dak	June 25, 1910	3,916	do	86,000.00	Limit.
Manhattan, Kans	June 30, 1906	4,843	do	47,849.21	Total.
Manistee, Mich	do	[1] 13,104	do	87,502.06	Do.
Manitowoc, Wis	do	12,549	do	94,974.35	Do.
Mankato, Minn	Jan. 27, 1891	8,954	do	100,000.00	Do.
Mansfield, Ohio	May 30, 1908	20,172	do	100,000.00	Limit.
Maquoketa, Iowa	June 25, 1910	[4] 3,570	Site	4,000.00	Total.
Do	Mar. 4, 1913	[4] 3,570	Building	50,000.00	Limit.
Marblehead, Mass	June 6, 1902	7,532	Site and building	69,948.00	Total.
Marengo, Iowa	Mar. 4, 1913	[4] 1,786	Site	5,000.00	Limit.
Marianna, Ark	do	5,716	Site and building	50,000.00	Do.
Marianna, Fla	do	2,211	do	70,000.00	Do.
Marietta, Ga	June 30, 1906	5,373	do	58,383.39	Total.
Marietta, Ohio	do	[1] 13,087	do	99,714.38	Do.
Marinette, Wis	Mar. 3, 1903	[1] 15,754	Site	9,973.40	Do.
Do	June 30, 1906	[1] 15,221	Building	80,000.00	Limit.
Marion, Ill	Mar. 4, 1913	8,431	Site and building	70,000.00	Do.
Marion, Ind	Mar. 3, 1903	18,766	Site	20,143.82	Total.
Do	June 30, 1906	19,041	Building	99,936.35	Do.
Marion, Ky	Mar. 4, 1913	1,792	Site and building	70,000.00	Limit.
Marion, Ohio	June 30, 1906	15,786	do	95,000.00	Do.
Marion, S. C	June 25, 1910	3,883	Site	6,600.00	Total.
Do	Mar. 4, 1913	4,432	Building	50,000.00	Limit.

[1] Decrease, 1900-1910.

[2] Not separately returned; can not estimate.

[3] Decrease, 1890-1900.

[4] Population Apr. 15, 1910. Decrease 1900-1910.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Marlboro, Mass	June 30, 1906	14,205	Site	$14,445.15	Total.
Do	May 30, 1908	14,392	Building	70,000.00	Limit.
Marlin, Tex	.....do	3,728	Site	7,500.00	Total.
Do	June 25, 1910	3,893	Building	57,000.00	Limit.
Marquette, Mich	July 27, 1882	[3] 5,639	Site and building	99,549.65	Total.
Marshall, Mo	May 30, 1908	4,910	Site	4,700.00	Do.
Do	June 25, 1910	[1] 4,869	Building	60,000.00	Limit.
Marshall, Tex	May 30, 1908	10,765	Site	10,000.00	Total.
Do	June 25, 1910	11,521	Building	65,000.00	Limit.
Marshalltown, Iowa	June 6, 1902	11,956	Site and building	85,000.00	Total.
Martin, Tenn	June 25, 1910	2,237	Site	5,000.00	Do.
Do	Mar. 4, 1913	2,373	Building	50,000.00	Limit.
Martinsburg, W. Va	June 9, 1890	7,228	Site and building	90,000.00	Total.
Martins Ferry, Ohio	Mar. 4, 1913	9,534	.....do	85,000.00	Limit.
Martinsville, Va	June 6, 1902	2,584	.....do	47,713.07	Total.
Maryville, Mo	May 30, 1908	4,726	.....do	75,000.00	Limit.
Maryville, Tenn	June 25, 1910	[2] 2,381	Site	10,000.00	Total.
Do	Mar. 4, 1913	[2] 2,381	Building	60,000.00	Limit.
Mason City, Iowa	Mar. 3, 1903	8,036	Site	8,461.46	Total.
Do	June 30, 1906	9,508	Building	73,922.53	Do.
Massillon, Ohio	May 30, 1908	13,511	Site and building	90,000.00	Limit.
Mattoon, Ill	.....do	11,114	.....do	90,000.00	Do.
Mayfield, Ky	June 30, 1906	5,221	.....do	54,508.37	Total.
Maysville, Ky	June 6, 1902	6,367	.....do	50,000.00	Do.
McAlester, Okla	May 30, 1908	11,273	Site	10,000.00	Do.
Do	June 25, 1910	13,125	Building	135,000.00	Limit.
McComb, Miss	.....do	6,271	Site	5,000.00	Total.
Do	Mar. 4, 1913	6,752	Building	50,000.00	Limit.
McCook, Nebr	May 30, 1908	3,513	Site	5,750.00	Total.
Do	June 25, 1910	3,791	Building	120,000.00	Limit.
McKeesport, Pa	June 6, 1902	35,750	Site and building	109,952.65	Total.
McKees Rocks, Pa	Mar. 4, 1913	17,137	.....do	80,000.00	Limit.
McKinney, Tex	May 30, 1908	4,639	.....do	60,000.00	Do.
McPherson, Kans	June 25, 1910	3,560	.....do	50,000.00	Do.
Meadville, Pa	Mar. 3, 1903	10,705	Site	31,073.70	Total.
Do	June 30, 1906	12,207	Building	88,874.67	Do.
Medford, Oreg	June 25, 1910	9,226	Site and building	110,000.00	Limit.
Media, Pa	.....do	3,571	Site	10,000.00	Total.
Do	Mar. 4, 1913	3,705	Building	60,000.00	Limit.
Memphis, Tenn	June 23, 1874	[3] 37,532	Building (site donated)	570,500.00	Total.
Do	Mar. 4, 1913	139,413	Site and building (sub-post office).	160,000.00	Limit.
Memphis, Tex	.....do	[2] 1,936	Site	7,500.00	Do.
Mena, Ark	June 25, 1910	3,964	.....do	4,100.00	Total.
Do	Mar. 4, 1913	4,106	Building	50,000.00	Limit.
Mendota, Ill	.....do	3,826	Site	10,000.00	Do.
Menominee, Mich	Mar. 2, 1899	12,546	Site and building	51,500.00	Total.
Menomonie, Wis	May 30, 1908	[4] 5,154	Site	10,000.00	Do.
Do	June 25, 1910	[1] 5,036	Building	50,000.00	Limit.
Meriden, Conn	June 6, 1902	24,902	Site and building	132,625.15	Total.
Meridian, Miss	Dec. 24, 1890	10,817	.....do	80,000.00	Do.
Merrill, Wis	May 30, 1908	8,661	Site	4,462.50	Do.
Do	Mar. 4, 1913	8,732	Building	75,000.00	Limit.
Metropolis, Ill	.....do	4,826	Site and building	50,000.00	Do.
Mexico, Mo	May 30, 1908	5,778	.....do	80,000.00	Do.
Miami, Fla	.....do	4,750	.....do	175,000.00	Do.
Michigan City, Ind	June 30, 1906	17,236	.....do	66,546.56	Total.
Middlesboro, Ky	June 25, 1910	7,367	.....do	85,000.00	Limit.
Middletown, Conn	July 13, 1832	[5] 6,960	.....do	14,176.64	Total.
Do	June 25, 1910	11,896	Site	28,000.00	Do.
Do	Mar. 4, 1913	12,512	Building	140,000.00	Limit.
Middletown, N. Y	June 30, 1906	15,009	Site	18,022.49	Total.
Do	May 30, 1908	15,162	Building	75,000.00	Limit.
Middletown, Ohio	.....do	12,402	Site	10,000.00	Total.
Do	Mar. 4, 1913	14,299	Building	100,000.00	Limit.
Midland, Mich	.....do	2,574	Site and building	60,000.00	Do.
Milbank, S. Dak	.....do	2,185	Site	7,500.00	Do.
Miles City, Mont	June 25, 1910	4,751	Site and building	150,000.00	Do.
Milford, Del	June 30, 1906	2,561	.....do	39,012.12	Total.
Milford, Mass	May 30, 1908	12,735	.....do	95,000.00	Limit.
Milledgeville, Ga	.....do	4,353	.....do	60,000.00	Do.
Millersburg, Ohio	Mar. 4, 1913	2,026	Site	7,500.00	Do.
Millville, N. J	June 25, 1910	12,487	Site and building	55,000.00	Do.

[1] Population Apr. 15, 1910. Decrease 1900–1910.

[2] Population Apr. 15, 1910. Not separately returned in 1900.

[3] Decrease 1870–1880.

[4] Decrease 1900–1910.

[5] Population 1840. Not separately returned in 1830.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Milwaukee, Wis	Mar. 4, 1913	406,783	Site (west side of city).	$100,000.00	Limit.
Do	June 21, 1889	192,390	Site and building	1,885,395.04	Total.
Minden, La	Mar. 4, 1913	3,420	Building (site donated).	50,000.00	Limit.
Mineral Point, Wis	do	[1] 2,925	Site and building	60,000.00	Do.
Mineral Wells, Tex	May 30, 1908	3,585	do	60,000.00	Do.
Minneapolis, Minn	Apr. 11, 1882	68,812	do	641,192.77	Total.
Do	June 30, 1906	263,502	Site	349,981.88	Do.
Do	May 30, 1908	282,652	Building	900,000.00	Limit.
Minot, N. Dak	do	5,253	Site and building	150,000.00	Do.
Mishawaka, Ind	June 25, 1910	12,008	do	75,000.00	Do.
Missoula, Mont	June 30, 1906	9,604	Site	19,920.75	Total.
Do	May 30, 1908	11,253	Building	180,000.00	Limit.
Mitchell, S. Dak	June 30, 1906	5,570	Site and building	89,992.65	Total.
Moberly, Mo	June 6, 1902	8,604	Site	4,979.32	Do.
Do	Mar. 3, 1903	8,822	Building	34,917.68	Do.
Mobile, Ala	Sept. 30, 1850	20,806	Site and building	394,564.93	Do.
Do	May 30, 1908	49,753	Site	125,000.00	Do.
Do	June 25, 1910	51,708	Building	300,000.00	Limit.
Modesto, Cal	Mar. 4, 1913	4,620	Site	20,000.00	Do.
Moline, Ill	June 30, 1906	20,650	Site and building	110,000.00	Do.
Monessen, Pa	Mar. 4, 1913	16,961	do	90,000.00	Do.
Monmouth, Ill	Mar. 2, 1899	7,270	do	48,000.93	Total.
Monongahela, Pa	June 25, 1910	7,646	do	80,000.00	Limit.
Monroe, Ga	Mar. 4, 1913	3,372	Site	5,000.00	Limit.
Monroe, La	June 18, 1888	3,025	Site and building	74,226.97	Total.
Monroe, Mich	May 30, 1908	8,388	do	60,000.00	Limit.
Monroe, N. C	do	3,766	Site	10,000.00	Total.
Do	June 25, 1910	4,114	Building	53,000.00	Limit.
Monroe, Wis	do	4,419	Site	7,500.00	Total.
Montclair, N. J	Mar. 4, 1913	23,766	Site and building	130,000.00	Limit.
Montevideo, Minn	June 25, 1910	3,074	Site	5,000.00	Total.
Do	Mar. 4, 1913	3,322	Building	50,000.00	Limit.
Monte Vista, Colo	do	3,125	Site	10,000.00	Do.
Montgomery, Ala	May 26, 1880	16,705	Site and building	165,371.29	Total.
Montpelier, Vt	Mar. 3, 1885	2,689	do	159,849.37	Do.
Montrose, Colo	Mar. 4, 1913	3,848	Site	15,000.00	Limit.
Moorhead, Minn	May 30, 1908	2,628	do	4,900.00	Total.
Do	June 25, 1910	4,861	Building	63,500.00	Limit.
Morgan City, La	Mar. 4, 1913	6,396	Site	6,000.00	Do.
Morgantown, W. Va	May 30, 1908	7,769	Site and building	135,000.00	Do.
Morristown, N. J	do	12,270	Site	35,000.00	Total.
Do	June 25, 1910	12,531	Building	125,000.00	Limit.
Morristown, Tenn	May 30, 1908	3,812	Site	5,000.00	Total.
Do	June 25, 1910	4,027	Building	70,000.00	Limit
Moscow, Idaho	June 30, 1906	3,214	Site and building	99,876.08	Total.
Moultrie, Ga	Mar. 4, 1913	3,678	do	65,000.00	Limit.
Moundsville, W. Va	June 25, 1910	8,987	do	90,000.00	Do.
Mountain Grove, Mo	Mar. 4, 1913	1,930	Site	7,500.00	Do.
Mount Airy, N. C	do	4,184	do	5,000.00	Do.
Mount Carmel, Ill	do	7,698	Site and building	75,000.00	Do.
Mount Clemens, Mich	May 30, 1908	7,491	do	65,000.00	Do.
Mount Olive, N. C	Mar. 4, 1913	1,204	Site	5,000.00	Do.
Mount Pleasant, Mich	do	4,062	Site and building	75,000.00	Do.
Mount Pleasant, Tex	do	[2] 3,137	do	55,000.00	Do.
Mount Sterling, Ky	May 30, 1908	3,854	do	65,000.00	Do.
Mount Vernon, Ill	June 25, 1910	8,061	do	90,000.00	Do.
Mount Vernon, Ind	do	5,571	Site	7,500.00	Total.
Mount Vernon, N. Y	May 30, 1908	29,073	do	35,000.00	Do.
Do	June 25, 1910	31,107	Building	100,000.00	Limit.
Muncie, Ind	June 6, 1902	21,583	Site and building	80,000.00	Total.
Murfreesboro, Tenn	June 30, 1906	4,416	do	66,999.92	Do.
Murphysboro, Ill	May 30, 1908	7,291	do	84,971.68	Do.
Murray, Ky	Mar. 4, 1913	2,167	Site	5,000.00	Limit.
Muscatine, Iowa	June 6, 1902	14,502	do	12,052.27	Total.
Do	June 30, 1906	15,369	Building	74,956.07	Do.
Muskegon, Mich	June 6, 1902	21,479	Site and building	67,141.32	Do.
Muskogee, Okla	May 30, 1908	21,276	do	560,000.00	Limit.
Mystic, Conn	Mar. 4, 1913	(3)	do	55,000.00	Do.
Nacogdoches, Tex	May 30, 1908	3,075	Site	5,000.00	Do.
Do	Mar. 4, 1913	3,819	Building	55,000.00	Do.
Nampa, Idaho	do	5,200	Site	10,000.00	Do.
Napoleon, Ohio	do	4,118	do	7,500.00	Do.
Narragansett Pier, R. I	June 25, 1910	(3)	Site and building	60,000.00	Do.
Nashua, N. H	June 6, 1902	24,328	do	89,869.15	Total.
Nashville, Tenn	Aug. 18, 1856	14,402	Site and building	443,184.44	Do.

[1] Population Apr. 15, 1910. Decrease 1900–1910.

[2] Population Apr. 15, 1910. Not separately returned in 1900.

[3] Not returned by census.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Natches, Miss	June 6, 1902	[1] 12,124	Site and building	$49,879.32	Total.
Natchitoches, La	do	2,417	Site	4,971.39	Do.
Do	Mar. 3, 1903	2,428	Building	59,428.48	Do.
Naugatuck, Conn	May 30, 1908	12,308	Site	25,000.00	Do.
Do	Mar. 4, 1913	13,359	Building	80,000.00	Limit.
Navasota, Tex	May 30, 1908	[1] 3,393	Site	4,500.00	Total.
Do	Mar. 4, 1913	[2] 3,284	Building	50,000.00	Limit.
Nebraska City, Nebr	Mar. 3, 1885	7,658	Site and building	110,755.37	Total.
Neenah, Wis	June 25, 1910	[2] 5,734	Site	5,000.00	Do.
Do	Mar. 4, 1913	[2] 5,734	Building	80,000.00	Limit.
Nephi, Utah	do	2,920	Site	5,000.00	Do.
Nevada, Mo	June 6, 1902	7,404	Site and building	74,160.32	Total.
New Albany, Ind	Mar. 3, 1885	18,625	do	103,968.33	Do.
Newark, Del	Mar. 4, 1913	2,118	Site	4,000.00	Do.
Newark, N. J	Aug. 4, 1854	52,699	Site and building	454,865.62	Do.
Do	Mar. 4, 1913	375,986	do	1,800,000.00	Limit.
Newark, N. Y	May 30, 1908	5,913	do	49,987.04	Total.
Newark, Ohio	June 30, 1906	22,128	do	190,000.00	Limit.
New Bedford, Mass	July 13, 1832	8,543	do	30,400.00	Total.
Do	Mar. 3, 1887	36,532	do	149,026.91	Do.
Do	May 30, 1908	90,140	Site	108,000.00	Do.
Do	June 25, 1910	97,317	Building	350,000.00	Limit.
Newbern, N. C	Mar. 2, 1889	7,668	Site and building	75,000.00	Total.
Newberry, S. C	May 30, 1908	4,950	do	60,000.00	Limit.
New Braunfels, Tex	do	2,961	Site	6,300.00	Total.
Do	Mar. 4, 1913	3,477	Building	50,000.00	Limit.
New Brighton, Pa	Mar. 3, 1899	6,670	Site and building	80,000.00	Total.
New Britain, Conn	June 30, 1906	37,881	do	132,030.03	Do.
New Brunswick, N. J	Mar. 1, 1889	19,830	do	115,000.00	Do.
Newburgh, N. Y	Jan. 12, 1891	23,202	do	100,000.00	Do.
Newburyport, Mass	June 25, 1910	14,958	Site	25,000.00	Do.
Do	Mar. 4, 1913	15,085	Building	70,000.00	Limit.
Newcastle, Ind	June 25, 1910	9,563	Site and building	90,000.00	Do.
Newcastle, Pa	June 6, 1902	29,896	do	110,945.68	Total.
Newcastle, Wyo	Mar. 4, 1913	1,038	Site	5,000.00	Limit.
New Haven, Conn	Aug. 4, 1854	28,250	Site and building	183,643.50	Total.
Do	June 25, 1910	134,100	do	1,600,000.00	Limit.
New Iberia, La	Mar. 2, 1899	6,394	do	50,024.00	Total.
New London, Conn	July 13, 1832	4,586	do	18,022.22	Do.
Do	June 20, 1890	13,777	do	75,000.00	Do.
New Martinsville, W. Va	Mar. 4, 1913	2,494	Site	12,500.00	Limit.
Newman, Ga	June 30, 1906	4,820	do	7,490.25	Total.
Do	May 30, 1908	5,187	Building	52,489.74	Do.
New Orleans, La	Mar. 3, 1847	104,972	Building (site ceded by city).	4,221,824.40	Do.
Do	June 6, 1902	297,707	Site	199,808.12	Do.
Do	June 30, 1906	319,119	Building	1,682,000.00	Limit.
New Philadelphia, Ohio	Mar. 4, 1913	9,228	Site	12,400.00	Total.
Newport, Ark	June 25, 1910	3,571	Site and building	59,500.00	Limit.
Newport, Ky	Feb. 20, 1895	26,515	do	75,000.00	Total.
Newport, R. I	May 24, 1828	7,870	do	10,500.00	Do.
Do	Mar. 4, 1913	28,522	do	400,000.00	Limit.
Newport, Vt	Mar. 2, 1899	1,858	do	123,512.96	Total
Newport News, Va	Feb. 21, 1899	17,700	do	246,241.53	Do.
New Rochelle, N. Y	June 25, 1910	29,141	do	125,000.00	Limit.
Newton, Iowa	Mar. 4, 1913	4,887	Site	10,000.00	Do.
Newton, Kans	June 30, 1906	7,225	Site and building	55,581.28	Total.
New Ulm, Minn	do	5,563	do	49,852.70	Do.
New York, N. Y	Aug. 18, 1856	700,871	do	9,058,417.88	Do.
Do	Apr. 28, 1904	3,963,417	Site	1,660,111.77	Do.
Do	May 27, 1908	4,512,719	Building	4,700,000.00	Limit.
Niagara Falls, N. Y	Mar. 2, 1867	[3] 3,006	Site and building	6,000.00	Total.
Do	June 6, 1902	21,698	do	150,000.00	Do.
Niles, Mich	June 30, 1906	4,822	do	56,240.40	Do.
Niles, Ohio	June 25, 1910	8,379	Site	15,000.00	Do.
Noblesville, Ind	Mar. 4, 1913	5,154	do	10,000.00	Limit.
Nogales, Ariz	do	4,025	do	10,000.00	Do.
Norfolk, Nebr	Mar. 2, 1899	3,777	do	4,840.14	Total.
Do	June 6, 1902	4,391	Building	100,000.00	Do.
Norfolk, Va	Jan. 2, 1891	35,563	Site and building	258,000.00	Do.
Norristown, Pa	June 6, 1902	23,409	do	78,000.00	Do.
North Adams, Mass	June 30, 1906	22,857	do	115,000.00	Limit.
Northampton, Mass	June 6, 1902	18,808	do	69,346.96	Total.
North Attleboro, Mass	June 25, 1910	9,607	do	70,000.00	Limit.
North Platte, Nebr	May 30, 1908	4,573	do	109,933.10	Total.
North Tonawanda, N. Y	June 30, 1906	10,845	Site	13,526.04	Do.
Do	June 25, 1910	12,011	Building	80,000.00	Limit.

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[1] Decrease 1900–1910.
[2] Population Apr. 15, 1910. Decrease 1900–1910.
[3] Population June 1, 1870. Not separately returned in 1860.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
North Topeka, Kans	Mar. 4, 1913	(1)	Site and building	$71,000.00	Limit.
North Vernon, Ind	do	2,941	do	60,000.00	Do.
North Yakima, Wash	June 30, 1906	9,884	Site	14,614.96	Total.
Do	May 30, 1908	11,183	Building	200,000.00	Limit.
Norton, Va	Mar. 4, 1913	2,218	Site and building	75,000.00	Do.
Norwich, Conn	Mar. 2, 1899	17,114	do	110,020.06	Total.
Nyack, N. Y	June 25, 1910	4,625	Site	15,500.00	Do.
Oakland, Cal	Mar. 2, 1899	64,722	Site and building	242,645.80	Do.
Oak Park, Ill	June 6, 1902	[2] 19,444	do	44,952.85	Do.
Ocala, Fla	Mar. 3, 1903	3,656	Site	7,541.91	Do.
Do	June 30, 1906	3,988	Building	109,957.69	Do.
Oconto, Wis	Mar. 4, 1913	[3] 5,629	Site and building	60,000.00	Limit.
Oelwein, Iowa	do	6,287	Site	8,000.00	Do.
Ogden, Utah	June 6, 1902	18,208	Site and building	309,196.05	Total.
Ogdensburg, N. Y	Aug. 18, 1856	[4] 7,409	do	228,106.96	Do.
Oil City, Pa	June 6, 1902	13,751	do	85,000.00	Do.
Oklahoma City, Okla	June 30, 1906	38,014	Site	157,408.16	Do.
Do	May 30, 1908	52,060	Building	252,535.72	Do.
Oldtown, Me	do	6,210	Site	10,000.00	Do.
Do	June 25, 1910	6,328	Building	60,000.00	Limit.
Olean, N. Y	June 30, 1906	10,867	Site and building	80,000.00	Do.
Olney, Ill	Mar. 4, 1913	5,230	do	70,000.00	Do.
Olympia, Wash	May 30, 1908	6,398	Site	15,500.00	Total.
Do	June 25, 1910	7,058	Building	130,000.00	Limit.
Olyphant, Pa	Mar. 4, 1913	9,182	Site and building	65,000.00	Limit.
Omaha, Nebr	Jan. 21, 1889	125,514	do	1,850,000.00	Total.
Oneida, N. Y	Mar. 4, 1913	8,543	Site	20,000.00	Limit.
Oneonta, N. Y	May 30, 1908	9,043	do	19,516.00	Total.
Do	June 25, 1910	9,536	Building	75,000.00	Limit.
Opelika, Ala	May 30, 1908	4,641	Site	4,500.00	Total.
Do	June 25, 1910	4,743	Building	105,000.00	Limit.
Opelousas, La	Aug. 1, 1888	1,591	Site and building	47,349.10	Total.
Orange, N. J	May 30, 1908	28,585	Site	30,000.00	Do.
Do	June 25, 1910	29,737	Building	100,000.00	Limit.
Orange, Tex	Mar. 4, 1913	6,020	Site and building	60,000.00	Do.
Orangeburg, S. C	May 30, 1908	5,632	do	60,000.00	Do.
Orlando, Fla	June 25, 1910	3,922	Site	5,000.00	Total.
Do	Mar. 4, 1913	4,307	Building	60,000.00	Limit.
Osage City, Kans	June 25, 1910	[5] 2,432	Site and building	57,000.00	Do.
Oskaloosa, Iowa	Mar. 2, 1899	8,881	do	70,000.00	Total.
Oshkosh, Wis	July 28, 1886	20,113	do	102,364.01	Do.
Oswego, N. Y	Aug. 4, 1854	14,131	do	125,977.98	Do.
Ottawa, Ill	June 6, 1902	10,361	do	60,000.00	Do.
Ottawa, Kans	May 30, 1908	7,514	Site	7,450.00	Do.
Do	June 25, 1910	7,664	Building	65,000.00	Limit.
Ottumwa, Iowa	May 30, 1908	21,315	Building (old site)	165,000.00	Do.
Owatonna, Minn	June 25, 1910	5,659	Site and building	58,000.00	Do.
Owego, N. Y	Mar. 4, 1913	[3] 4,633	do	75,000.00	Do.
Owensboro, Ky	June 30, 1906	14,925	do	175,000.00	Do.
Owosso, Mich	June 6, 1902	8,888	do	64,000.00	Total.
Oxford, Miss	July 12, 1882	1,536	do	66,737.84	Do.
Oxford, N. C	May 30, 1908	2,835	Site	7,500.00	Do.
Do	June 25, 1910	3,037	Building	50,000.00	Limit.
Paducah, Ky	Apr. 14, 1880	8,021	Site and building	135,509.43	Total.
Paintsville, Ky	Mar. 4, 1913	1,057	Site	5,000.00	Limit.
Palatka, Fla	June 25, 1910	3,788	Site and building	60,000.00	Do.
Palestine, Tex	June 30, 1906	9,641	Site	9,934.53	Total.
Do	May 30, 1908	10,065	Building	69,940.42	Do.
Pana, Ill	do	5,955	Site and building	70,000.00	Limit.
Paragould, Ark	do	4,882	do	50,000.00	Do.
Paris, Ill	June 30, 1906	7,065	do	105,000.00	Do.
Paris, Ky	do	5,355	do	50,575.70	Total.
Paris, Tenn	do	3,163	do	39,659.46	Do.
Paris, Tex	July 9, 1890	8,300	do	104,000.00	Do.
Park City, Utah	May 30, 1908	[5] 3,500	do	30,000.00	Limit.
Parkersburg, W. Va	Mar. 3, 1873	5,831	do	240,900.43	Total.
Parsons, Kans	May 30, 1908	11,551	do	75,000.00	Limit.
Pasadena, Cal	do	27,103	Site	50,000.00	Total.
Do	June 25, 1910	30,793	Building	200,000.00	Limit.
Pasco, Wash	Mar. 4, 1913	2,616	Site	10,000.00	Do.
Passaic, N. J	June 25, 1910	55,298	do	25,000.00	Total.
Paterson, N. J	June 7, 1888	72,935	Site and building	198,796.45	Do.
Pawtucket, R. I	Jan. 12, 1891	28,348	do	75,000.00	Do.
Paxton, Ill	Mar. 4, 1913	[3] 2,912	do	60,000.00	Limit.

[1] Not returned by census.

[2] Population Apr. 15, 1910. Not separately returned in 1900.

[3] Population Apr. 15, 1910. Decrease 1900-1910.

[4] Population June 1, 1860. Not separately returned in 1850.

[5] Decrease 1900-1910.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Peekskill, N. Y.	May 30, 1908	14,315	Site and building	$44,977.38	Total.
Pekin, Ill	June 6, 1902	8,721	do	79,958.09	Do.
Pendleton, Oreg	May 30, 1908	4,450	do	130,000.00	Limit.
Penn Yan, N. Y	do	4,609	do	50,000.00	Do.
Pensacola, Fla	June 10, 1882	7,837	do	206,791.94	Total.
Peoria, Ill	May 9, 1882	31,540	do	304,276.86	Do.
Perry, Iowa	June 25, 1910	4,642	do	60,000.00	Limit.
Perry, Okla	Mar. 2, 1907	2,896	do	(1)	
Perth Amboy, N. J	June 6, 1902	20,641	do	66,954.15	Total.
Peru, Ind	June 30, 1906	10,780	Site	14,991.00	Do.
Do	May 30, 1908	10,845	Building	75,000.00	Limit.
Petersburg, Va	Aug. 4, 1854	15,784	Site and building	99,664.88	Total.
Petoskey, Mich	May 30, 1908	[2] 4,877	Site	10,000.00	Do.
Do	June 25, 1910	[3] 4,778	Building	65,000.00	Limit.
Philadelphia, Pa	June 8, 1872	709,029	Site and building	6,115,143.49	Total.
Philippi, W. Va	June 25, 1910	1,045	Site	8,000.00	Do.
Phoenix, Ariz	May 30, 1908	10,072	Site and building	169,954.52	Do.
Phoenixville, Pa	Mar. 4, 1913	11,193	do	80,000.00	Limit.
Pierre, S. Dak	June 6, 1902	2,580	Site	4,985.71	Total.
Do	Mar. 3, 1903	2,682	Building	170,386.86	Do.
Pikeville, Ky	Mar. 4, 1913	1,505	Site	7,500.00	Limit.
Pine Bluff, Ark	Mar. 3, 1903	12,307	do	6,576.00	Total.
Do	June 30, 1906	13,884	Building	74,923.58	Do.
Piqua, Ohio	June 25, 1910	13,412	Site and building	175,000.00	Limit.
Pittsburg, Kans	June 30, 1906	12,971	do	74,877.66	Total.
Pittsburgh, Pa	Mar. 3, 1873	105,436	Site	301,125.00	Do.
Do	May 24, 1880	156,235	Building	1,610,462.15	Do
Do	June 30, 1906	371,055	Site	942,343.91	Do.
Pittsburg, Tex	Mar. 4, 1913	1,953	Site and building	55,000.00	Limit.
Pittsfield, Mass	June 30, 1906	28,143	do	114,721.78	Total.
Pittston, Pa	Mar. 4, 1913	17,349	do	100,000.00	Limit.
Plainfield, N. J	May 30, 1908	19,563	do	150,000.00	Do.
Platteville, Wis	June 30, 1906	4,022	do	64,999.47	Total.
Plattsburg, N. Y	Mar. 3, 1855	[4] 2,926	do	71,425.17	Do.
Plattsmouth, Nebr	June 30, 1906	[2] 4,549	Site	2,618.89	Do.
Do	May 30, 1908	[2] 4,417	Building	49,853.53	Do.
Plymouth, Ind	Mar. 4, 1913	3,890	Site	10,000.00	Limit.
Plymouth, Mass	June 30, 1906	11,162	do	29,620.19	Total.
Do	May 30, 1908	11,656	Building	87,379.81	Limit.
Pocatello, Idaho	do	8,146	Site	1.00	Total.
Do	June 25, 1910	9,209	Building	100,000.00	Limit.
Point Pleasant, W. Va	May 30, 1908	2,022	Site and building	75,000.00	Do.
Pontiac, Ill	do	5,743	do	89,977.32	Total.
Pontiac, Mich	June 30, 1906	12,701	Site	12,035.34	Do.
Do	May 30, 1908	13,624	Building	69,997.84	Do.
Poplar Bluff, Mo	do	6,422	Site	9,000.00	Do.
Do	June 25, 1910	6,967	Building	65,000.00	Limit.
Port Arthur, Tex	May 30, 1908	6,374	Site and building	124,998.34	Total.
Port Huron, Mich	June 10, 1872	6,563	do	245,953.34	Do.
Port Jervis, N. Y	June 25, 1910	9,568	do	80,000.00	Limit.
Portland, Ind	do	5,137	do	60,000.00	Do.
Portland, Me	June 28, 1866	29,422	Building (old site)	392,214.64	Total.
Portland, Oreg	July 20, 1868	7,281	Site and building	380,332.20	Do.
Do	June 25, 1910	209,521	Site	340,000.00	Do.
Do	Mar. 4, 1913	242,650	Building	1,160,000.00	Limit.
Portsmouth, N. H	Aug. 18, 1856	9,489	Site and building	164,616.01	Total.
Portsmouth, Ohio	Mar. 11, 1888	12,156	do	75,064.27	Do.
Portsmouth, Va	June 6, 1902	18,805	Site	22,481.27	Do.
Do	June 30, 1906	21,591	Building	86,891.75	Do.
Port Townsend, Wash	Mar. 3, 1885	2,648	Site and building	251,000.00	Do.
Pottstown, Pa	June 25, 1910	15,636	Site	17,000.00	Do.
Do	Mar. 4, 1913	16,152	Building	90,000.00	Limit.
Pottsville, Pa	Feb. 20, 1895	14,869	Site and building	60,000.00	Total.
Poughkeepsie, N. Y	July 15, 1882	20,631	do	110,341.57	Do.
Pratt, Kans	Mar. 4, 1913	3,910	do	60,000.00	Limit.
Prescott, Ariz	do	5,539	Site	7,500.00	Total.
Prescott, Ark	do	2,910	Site and building	50,000.00	Limit.
Prestonsburg, Ky	do	1,328	Site	5,000.00	Do.
Princeton, Ill	June 25, 1910	4,133	Site and building	70,000.00	Do.
Princeton, Ind	May 30, 1908	6,369	do	65,000.00	Do.
Providence, R. I	Mar. 3, 1853	44,037	Building	209,723.32	Total.
Do	Aug. 4, 1854	45,336	Site	40,000.00	Do.
Do	June 6, 1902	185,538	Site and building	1,004,807.59	Do.
Provincetown, Mass	Mar. 4, 1913	4,404	Site	8,000.00	Limit.
Provo, Utah	June 30, 1906	7,871	Site and building	59,793.77	Total.
Pueblo, Colo	Feb. 7, 1891	24,805	do	300,000.00	Do.

[1] Accepted by act of Mar. 2, 1907.

[2] Decrease 1900–1910

[3] Population Apr. 15, 1910. Decrease 1900–1910.

[4] State census, 1855.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Pulaski, Tenn	May 30, 1908	2,911	Site	$4,500.00	Total.
Do	June 25, 1910	2,929	Building	50,000.00	Limit.
Pulaski, Va	do	4,847	Site	5,000.00	Total.
Do	Mar. 4, 1913	5,388	Building	50,000.00	Limit.
Punxsutawney, Pa	June 30, 1906	8,169	Site	24,977.87	Total.
Do	June 25, 1910	9,103	Building	60,000.00	Limit.
Putnam, Conn	do	[1] 6,637	Site and building	65,000.00	Do.
Quincy, Ill	May 9, 1882	28,087	do	164,358.35	Total.
Quincy, Mass	June 6, 1902	25,681	Site	11,992.19	Do.
Do	June 30, 1906	29,283	Building	80,000.00	Limit.
Quitman, Ga	June 25, 1910	3,947	Site and building	50,000.00	Do.
Racine, Wis	Dec. 24, 1890	21,294	do	100,000.00	Total.
Raleigh, N. C	Mar. 3, 1857	4,695	do	349,617.40	Do.
Rapid City, S. Dak	May 30, 1908	3,375	Site	5,500.00	Do.
Do	June 25, 1910	3,903	Building	100,000.00	Limit.
Raton, N. Mex	Mar. 4, 1913	4,831	Site and building	75,000.00	Do.
Rawlins, Wyo	June 30, 1906	3,510	do	78,928.73	Total.
Reading, Mass	June 25, 1910	5,835	Site	9,550.00	Do.
Do	Mar. 4, 1913	6,066	Building	55,000.00	Limit.
Reading, Pa	Mar. 3, 1885	50,590	Site and building	214,991.70	Total.
Red Bank, N. J	June 25, 1910	7,436	Site	25,000.00	Do.
Red Bluff, Cal	Mar. 4, 1913	3,758	Site and building	60,000.00	Limit.
Redfield, S. Dak	June 25, 1910	3,100	Site	6,600.00	Total.
Do	Mar. 4, 1913	3,658	Building	65,000.00	Limit.
Red Oak, Iowa	May 30, 1908	4,739	Site	8,501.00	Total.
Do	June 25, 1910	4,839	Building	75,000.00	Limit.
Red Wing, Minn	June 30, 1906	8,462	Site and building	62,477.09	Total.
Reidsville, N. C	Jan. 2, 1891	2,986	do	24,983.73	Do.
Reno, Nev	June 6, 1902	5,799	do	104,986.70	Do.
Rhinelander, Wis	Mar. 4, 1913	5,822	do	91,000.00	Limit.
Richfield, Utah	June 25, 1910	2,570	Site	5,000.00	Total.
Do	Mar. 4, 1913	2,731	Building	55,000.00	Limit.
Richford, Vt	May 30, 1908	1,865	Site and building	74,000.00	Do.
Richmond, Ind	June 6, 1902	18,979	do	80,000.00	Total.
Richmond, Ky	Feb. 24, 1891	[2] 5,042	do	100,000.00	Do.
Richmond, Va	Aug. 30, 1852	29,893	do	254,757.35	Do.
Ridgway, Pa	May 30, 1908	5,047	Site	10,000.00	Do.
Do	Mar. 4, 1913	5,961	Building	80,000.00	Limit.
Ripon, Wis	do	[1] 3,739	Site and building	75,000.00	Do.
Riverside, Cal	May 30, 1908	13,834	do	110,000.00	Do.
Roanoke, Va	Feb. 24, 1891	16,550	do	75,000.00	Total.
Robinson, Ill	June 25, 1910	3,905	do	70,000.00	Limit.
Rochelle, Ill	May 30, 1908	2,607	Site	7,500.00	Total.
Do	June 5, 1910	2,745	Building	55,000.00	Limit.
Rochester, Ind	Mar. 4, 1913	[1] 3,364	Site and building	70,000.00	Do.
Rochester, Minn	June 30, 1906	7,457	Site	7,965.54	Total.
Do	May 30, 1908	7,652	Building	49,988.60	Do.
Rochester, N. H	do	8,793	Site	15,000.00	Do.
Do	June 25, 1910	8,876	Building	75,000.00	Limit.
Rochester, N. Y	May 25, 1882	98,187	Site and building	589,210.09	Total.
Rochester, Pa	June 25, 1910	5,927	Site	26,000.00	Do.
Rockford, Ill	Feb. 9, 1891	24,098	Site and building	100,000.00	Do.
Rock Hill, S. C	June 6, 1902	5,837	do	45,000.00	Do.
Rockingham, N. C	Mar. 4, 1913	2,278	Site	5,000.00	Limit.
Rock Island, Ill	Dec. 24, 1890	13,966	Site and building	75,000.00	Total.
Rockland, Me	May 17, 1872	7,176	do	144,828.11	Do.
Rock Springs, Wyo	May 30, 1908	5,510	do	90,000.00	Limit.
Rockville, Conn	June 25, 1910	7,991	Site	19,000.00	Total.
Do	Mar. 4, 1913	8,179	Building	55,000.00	Limit.
Rocky Mount, N. C	June 25, 1910	8,151	Site and building	8[illegible],000.00	Do.
Rogers, Ark	Mar. 4, 1913	3,013	do	70,000.00	Do.
Rogersville, Tenn	do	[1] 1,242	Site	3,000.00	Do.
Rolla, Mo	May 30, 1908	2,135	do	4,340.00	Total.
Do	June 25, 1910	2,274	Building	50,000.00	Limit.
Rome, Ga	Jan. 2, 1891	6,976	Site and building	50,000.00	Total.
Rome, N. Y	Mar. 2, 1899	15,299	do	70,000.00	Do.
Roseburg, Oreg	June 25, 1910	4,796	Site	10,000.00	Do.
Do	Mar. 4, 1913	5,626	Building	100,000.00	Limit.
Rossville, Ga	do	[3] 1,059	Site	5,000.00	Total.
Roswell, N. Mex	May 30, 1908	5,387	Site and building	125,000.00	Limit.
Rumford, Me	June 25, 1910	6,836	Site	10,000.00	Total.
Do	Mar. 4, 1913	7,653	Building	60,000.00	Limit.
Russellville, Ark	do	3,257	Site and building	50,000.00	Do.
Ruston, La	June 30, 1906	2,588	do	48,910.66	Total.
Rutherfordton, N. C	Mar. 4, 1913	1,115	Site	5,000.00	Limit.
Rutland, Vt	Aug. 18, 1856	6,114	Site and building	72,224.43	Total.

[1] Population Apr. 15, 1910. Decrease, 1900–1910.
[2] Decrease 1890–1900.
[3] Population Apr. 15, 1910. Not separately returned in 1900.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Saco, Me	Mar. 4, 1913	6,716	Site and building	$60,000.00	Limit.
Sacramento, Cal	Feb. 28, 1885	23,776	....do	304,812.37	Total.
Saginaw, Mich	Mar. 3, 1891	46,623	....do	100,000.00	Do.
St. Albans, Vt	Jan. 26, 1891	7,789	....do	155,000.00	Do.
St. Charles, Mo	June 30, 1906	8,876	....do	58,289.21	Do.
St. Cloud, Minn	Mar. 2, 1899	8,541	....do	68,000.00	Do.
St. Johns, Oreg	Mar. 4, 1913	[1] 4,872	Site	5,000.00	Limit.
St. Johnsbury, Vt	....do	6,992	Site and building	100,000.00	Do.
St. Joseph, Mo	Aug. 5, 1882	36,769	....do	361,200.00	Total.
St. Louis, Mo	June 6, 1902	598,046	....do	1,547,550.00	Limit.
St. Marys, Ohio	Mar. 4, 1913	5,840	Site	7,500.00	Do.
St. Paul, Minn	Feb. 16, 1891	135,286	Site and building	1,150,000.00	Total.
St. Peter, Minn	Mar. 4, 1913	[2] 4,176	....do	60,000.00	Limit.
St. Petersburg, Fla	May 30, 1908	3,641	Site	20,000.00	Total.
Do	June 25, 1910	4,177	Building	102,500.00	Limit.
Salamanca, N. Y	May 30, 1908	5,499	Site	10,000.00	Total.
Do	Mar. 4, 1913	6,242	Building	75,000.00	Limit.
Salem, Ind	....do	2,366	Site	5,000.00	Do.
Salem, Mass	——— —, 1818	[3] 11,599	Site and building	19,271.77	Total.
Salem, N. J	Mar. 4, 1913	6,848	....do	10,000.00	Limit.
Salem, Ohio	June 25, 1910	8,970	....do	85,000.00	Do.
Salem, Oreg	Mar. 2, 1899	[4] 4,258	....do	100,000.00	Total.
Salem, Va	Mar. 4, 1913	3,995	....do	65,000.00	Limit.
Salina, Kans	June 25, 1890	[5] 6,149	....do	75,080.00	Total.
Salisbury, Md	Mar. 4, 1913	7,394	....do	90,000.00	Limit.
Salisbury, N. C	June 30, 1906	6,816	....do	139,712.76	Total.
Salt Lake City, Utah	June 11, 1896	50,079	....do	540,000.00	Do.
San Angelo, Tex	June 30, 1906	[6] 10,321	....do	119,915.79	Do.
San Antonio, Tex	Apr. 15, 1886	30,606	....do	209,953.57	Do.
San Bernardino, Cal	June 25, 1910	12,910	Site	16,500.00	Do.
Sandersville, Ga	Mar. 4, 1913	2,820	....do	5,000.00	Limit.
San Diego, Cal	June 30, 1906	31,176	Site and building	235,000.00	Do.
Sandpoint, Idaho	Mar. 4, 1913	[1] 2,993	....do	70,000.00	Do.
Sandusky, Ohio	Aug. 4, 1864	10,325	....do	74,987.16	Total.
Do	Mar. 4, 1913	20,083	Building (on United States ground).	130,000.00	Limit.
Sanford, Fla	....do	4,188	Site and building	70,000.00	Do.
San Francisco, Cal	Mar. 3, 1887	277,900	Site	1,055,055.04	Total.
Do	Mar. 3, 1893	311,064	Building	2,520,163.89	Do.
San Jose, Cal	Apr. 28, 1890	18,029	Site and building	200,000.00	Do.
San Juan, P. R	June 30, 1906	42,648	Building (on Government land).	457,000.00	Limit.
San Luis Obispo, Cal	Mar. 4, 1913	5,779	Site and building	80,000.00	Do.
San Marcos, Tex	June 30, 1906	3,386	Site	6,530.66	Total.
Do	May 30, 1908	3,730	Building	50,000.00	Limit.
San Pedro, Cal	Mar. 4, 1913	(7)	Site and building	60,000.00	Do.
Santa Barbara, Cal	May 30, 1908	10,695	....do	130,000.00	Do.
Santa Cruz, Cal	June 30, 1906	9,038	Site	14,518.48	Total.
Do	May 30, 1908	10,103	Building	87,171.01	Do.
Santa Fe, N. Mex	Mar. 4, 1913	[8] 5,072	Site and building	295,000.00	Limit.
Santa Rosa, Cal	June 30, 1906	7,377	....do	76,252.17	Total.
Saranac Lake, N. Y	Mar. 4, 1913	5,680	....do	90,000.00	Limit.
Saratoga Springs, N. Y	June 6, 1902	12,465	Site	36,418.11	Total.
Do	Mar. 3, 1903	12,488	Building	86,131.63	Do.
Sault Ste. Marie, Mich	June 30, 1906	11,816	Building (on Government land).	149,768.47	Do.
Savanna, Ill	June 25, 1910	3,698	Site	5,000.00	Do.
Do	Mar. 4, 1913	3,798	Building	50,000.00	Limit.
Savannah, Ga	June 30, 1886	38,298	Site and building	444,665.12	Total.
Sayre, Pa	Mar. 4, 1913	6,772	....do	80,000.00	Limit.
Schenectady, N. Y	June 30, 1906	60,098	....do	209,417.18	Total.
Scranton, Pa	Jan. 27, 1882	50,717	....do	265,000.00	Do.
Searcy, Ark	May 30, 1908	2,267	Site	1,500.00	Do.
Do	June 25, 1910	2,337	Building	45,000.00	Limit.
Seattle, Wash	Mar. 2, 1899	75,945	Site and building	899,974.27	Total.
Do	June 25, 1910	240,582	Site	169,500.00	Do.
Do	Mar. 4, 1913	289,419	Building	300,000.00	Limit.
Sedalia, Mo	Feb. 13, 1889	13,484	Site and building	49,696.91	Total.
Seguin, Tex	Mar. 4, 1913	3,318	Site	7,500.00	Limit.
Selma, Ala	June 6, 1902	11,710	Site and building	134,460.69	Total.
Sewickley, Pa	June 30, 1906	4,129	Site	14,983.85	Do.
Do	May 30, 1908	4,306	Building	60,000.00	Limit.

[1] Population Apr. 15, 1910. Not separately returned in 1900.

[2] Population Apr. 15, 1910. Decrease 1900-1910.

[3] Decrease 1810-1820.

[4] Population June 1, 1900. Not separately returned in 1890.

[5] Decrease 1890-1900.

[6] Population Apr. 15, 1910. Not returned in 1900.

[7] Annexed to Los Angeles city in 1909. Can not estimate.

[8] Population Apr. 15, 1910. Decrease since 1900.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Seymour, Conn	June 25, 1910	4,810	Site	$12,000.00	Total.
Do	Mar. 4, 1913	5,150	Building	60,000.00	Limit.
Seymour, Ind	June 25, 1910	6,303	Site and building	75,000.00	Do.
Shamokin, Pa	June 30, 1906	19,054	Site	14,984.25	Total.
Do	May 30, 1908	19,323	Building	75,000.00	Limit.
Sharon, Pa	June 30, 1906	13,597	Site and building	79,964.48	Total.
Shawnee, Okla	Mar. 4, 1913	15,102	do	125,000.00	Limit.
Sheboygan, Wis	Dec. 27, 1890	[1] 1,118	do	55,000.00	Total.
Shelby, N. C	June 25, 1910	3,152	Site	8,000.00	Do.
Do	Mar. 4, 1913	3,493	Building	55,000.00	Limit.
Shelbyville, Ind	do	10,179	Site and building	80,000.00	Do.
Shelbyville, Ky	June 25, 1910	3,419	Site	10,000.00	Total.
Do	Mar. 4, 1913	3,528	Building	50,000.00	Limit.
Shelbyville, Tenn	May 30, 1908	2,749	Site	4.600.00	Total.
Do	June 25, 1910	2,881	Building	60,000.00	Limit.
Shenandoah, Iowa	June 30, 1906	4,437	Site	4,995.69	Total.
Do	May 30, 1908	4,709	Building	49,446.76	Do.
Sheridan, Wyo	June 30, 1906	5,777	Site and building	157,000.00	Limit.
Sherman, Tex	June 6, 1902	10,583	do	144,401.68	Total.
Shreveport, La	May 30, 1908	24,516	Building (old site)	200,000.00	Limit.
Sidney, Ohio	June 25, 1910	6,625	Site	20,000.00	Total.
Do	Mar. 4, 1913	6,875	Building	70,000.00	Limit.
Sikeston, Mo	do	3,983	Site	7,500.00	Do.
Sioux City, Iowa	n. 15, 1891	[2] 37,575	Site and building	259,132.24	Total.
Sioux Falls, S. Dak	Jan. 26, 1891	10,183	do	165,300.25	Do.
Sistersville, W. Va	May 30, 1908	[3] 2,740	Site	8,750.00	Total.
Do	June 25, 1910	[4] 2,684	Building	70,000.00	Limit.
Skowhegan, Me	do	5,344	Site	13,334.98	Total.
Do	Mar. 4, 1913	5,387	Building	65,000.00	Limit.
Smyrna, Del	June 25, 1910	[4] 1,843	Site and building	35,000.00	Do.
Somerset, Ky	May 30, 1908	4,281	do	65,000.00	Do.
Somersworth, N. H	Mar. 4, 1913	6,704	Site	7,500.00	Do.
South Bend, Ind	Jan. 2, 1891	23,655	Site and building	75,000.00	Total.
South Bethlehem, Pa	June 25, 1910	20,104	Site	18,000.00	Do.
Do	Mar. 4, 1913	21,936	Building	100,000.00	Limit.
South Boston, Va	June 25, 1910	3,549	Site	4,800.00	Total.
Do	Mar. 4, 1913	4,002	Building	50,000.00	Limit.
Southbridge, Mass	do	13,341	Site and building	80,000.00	Do.
South Chicago, Ill	June 30, 1906	(5)	Site	49,966.55	Total.
Do	June 25, 1910	(5)	Building	150,000.00	Limit.
South Framingham, Mass	Mar. 4, 1913	[6] 13,427	Site	25,000.00	Do.
South Omaha, Nebr	Feb. 20, 1895	16,535	Site and building	100,000.00	Total.
Spanish Fork, Utah	Mar. 4, 1913	3,677	do	50,000.00	Limit.
Sparta, Wis	June 25, 1910	3,981	do	60,000.00	Do.
Spartanburg, S. C	June 6, 1902	12,644	do	59,438.51	Total.
Spokane, Wash	do	49,406	Site	99,939.63	Do.
Do	Mar. 3, 1903	54,018	Building	499,793.20	Do.
Springfield, Ill	Aug. 18, 1856	7,507	Site and building	296,803.87	Do.
Springfield, Mass	Jan. 3, 1887	40,484	do	187,711.28	Do.
Springfield, Mo	Mar. 29, 1888	18,516	do	155,000.00	Do.
Springfield, Ohio	Mar. 3, 1885	26,035	do	144,509.59	Do.
Springfield, Tenn	May 30, 1908	2,015	Site	5,000.00	Do.
Do	June 25, 1910	2,091	Building	45,000.00	Limit.
Spring Valley, Ill	Mar. 4, 1913	7,275	Site	10,000.00	Do.
Stamford, Conn	June 25, 1910	25,318	Site and building	150,000.00	Do.
Stamford, Tex	do	[7] 3,902	Site	10,000.00	Total.
Do	Mar. 4, 1913	[7] 3,902	Building	50,000.00	Limit.
State College, Pa	do	1,593	Site and building	75,000.00	Do.
Statesboro, Ga	June 25, 1910	2,555	Site	7,500.00	Total.
Do	Mar. 4, 1913	2,916	Building	50,000.00	Limit.
Statesville, N. C	Aug. 8, 1888	2,090	Site and building	77,137.79	Do.
Staunton, Va	Jan. 26, 1891	6,996	do	75,000.00	Total.
Steelton, Pa	May 30, 1908	13,853	do	75,000.00	Limit.
Sterling, Colo	Mar. 4, 1913	3,642	Site	15,000.00	Do.
Sterling, Ill	June 6, 1902	6,545	do	5,024.88	Total.
Do	Mar. 3, 1903	6,632	Building	40,011.12	Do.
Steubenville, Ohio	May 30, 1908	20,860	Site	35,000.00	Do.
Do	June 25, 1910	22,548	Building	85,000.00	Limit.
Stevens Point, Wis	May 30, 1908	[3] 8,851	Site and building	65,000.00	Do.
Stillwater, Minn	June 6, 1902	11,887	do	60,000.00	Total.
Stockton, Cal	Jan. 12, 1891	14,615	do	142,666.24	Do.
Streator, Ill	Mar. 2, 1899	13,747	do	50,000.00	Do.

[1] **Decrease 1880–1890.**

[2] **Decrease 1890–1900.**

[3] **Decrease, 1900–1910.**

[4] **Population Apr. 15, 1910. Decrease, 1900–1910.**

[5] **Not returned by census.**

[6] **Not separately returned. Estimate for Framingham.**

[7] **Population Apr. 15, 1910. Not separately returned in 1900.**

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Stuttgart, Ark	Mar. 4, 1913	3,173	Site	$5,000.00	Limit.
Suffolk, Va	May 30, 1908	6,404	Site and building	87,000.00	Do.
Sulphur Springs, Tex	....do	4,862	....do	50,000.00	Do.
Sumter, S. C	June 30, 1906	7,172	....do	70,000.00	Do.
Sunbury, Pa	May 30, 1908	13,016	Site	22,000.00	Total.
Do	June 25, 1910	13,847	Building	100,000.00	Limit.
Superior, Wis	June 6, 1902	32,988	Site and building	297,298.40	Total.
Sweetwater, Tex	Mar. 4, 1913	5,199	Site	6,500.00	Do.
Sycamore, Ill	June 25, 1910	3,931	Site and building	60,000.00	Limit.
Sylacauga, Ala	Mar. 4, 1913	1,624	Site	5,000.00	Total.
Syracuse, N. Y	May 25, 1882	59,002	Site and building	401,070.55	Do.
Do	June 30, 1906	125,772	Site	324,999.17	Do.
Do	Mar. 4, 1913	145,543	Building	550,000.00	Limit.
Tacoma, Wash	June 6, 1902	45,574	Site	96,035.47	Total.
Do	Mar. 3, 1903	48,460	Building	500,000.00	Limit.
Talladega, Ala	May 30, 1908	5,702	Site and building	80,000.00	Do.
Tallahassee, Fla	June 7, 1888	2,847	....do	85,000.00	Total.
Tamaqua, Pa	Mar. 4, 1913	10,102	....do	75,000.00	Limit.
Tampa, Fla	Mar. 3, 1899	14,557	....do	365,000.00	Total.
Tarboro, N. C	June 25, 1910	4,161	....do	75,000.00	Limit.
Tarentum, Pa	....do	7,452	Site	20,000.00	Total.
Do	Mar. 4, 1913	7,981	Building	60,000.00	Limit.
Taunton, Mass	Jan. 2, 1891	25,776	Site and building	75,000.00	Total.
Taylor, Tex	Mar. 4, 1913	5,634	Site	5,000.00	Limit.
Taylorville, Ill	June 25, 1910	5,469	....do	12,000.00	Total.
Do	Mar. 4, 1913	5,796	Building	60,000.00	Limit.
Temple, Tex	June 30, 1906	9,483	Site	9,855.09	Total.
Do	May 30, 1908	10,244	Building	70,000.00	Limit.
Terre Haute, Ind	July 7, 1882	26,918	Site and building	185,138.74	Total.
Terrell, Tex	May 30, 1908	6,913	....do	50,000.00	Limit.
Texarkana, Ark	Apr. 19, 1888	3,075	....do	109,629.76	Total.
The Dalles, Oreg	June 25, 1910	4,906	....do	104,000.00	Limit.
Thibodaux, La	Mar. 4, 1913	3,991	....do	50,000.00	Do.
Thomasville, Ga	June 25, 1910	6,754	....do	70,000.00	Do.
Thomasville, N. C	Mar. 4, 1913	4,790	....do	55,000.00	Do.
Thomson, Ga	....do	2,442	Site	5,000.00	Do.
Three Rivers, Mich	June 25, 1910	5,102	Site and building	60,000.00	Do.
Tiffin, Ohio	May 30, 1908	11,721	Site	20,000.00	Total.
Do	June 25, 1910	11,911	Building	77,500.00	Limit.
Tifton, Ga	May 30, 1908	2,193	Site	7,000.00	Total.
Do	June 25, 1910	2,400	Building	49,961.11	Do.
Titusville, Pa	May 30, 1908	8,476	Site	25,000.00	Do.
Do	Mar. 4, 1913	8,616	Building	75,000.00	Limit.
Toccoa, Ga	....do	3,394	Site	5,000.00	Total.
Toledo, Ohio	June 6, 1902	139,304	....do	135,125.68	Do.
Do	June 30, 1906	154,414	Building	550,000.00	Do.
Tomah, Wis	Mar. 4, 1913	3,588	Site and building	55,000.00	Limit.
Topeka, Kans	Mar. 3, 1875	10,597	Site	10,000.00	Total.
Do	June 20, 1878	13,568	Building	286,058.24	Do.
Torrington, Conn	June 6, 1902	9,815	Site and building	50,000.00	Do.
Traverse City, Mich	....do	9,960	Site	5,918.93	Do.
Do	Mar. 3, 1903	10,163	Building	48,260.52	Do.
Trenton, Mo	May 30, 1908	5,605	Site	3,000.00	Do.
Trenton, N. J	Mar. 3, 1871	23,404	Site and building	408,758.19	Do.
Trinidad, Colo	June 30, 1906	8,338	....do	75,000.00	Do
Troy, Ala	....do	4,627	Site	4,980.74	Do.
Do	May 30, 1908	4,797	Building	40,000.00	Limit.
Troy, N. Y	Feb. 14, 1885	58,728	Site and building	523,351.09	Total.
Tucson, Ariz	June 25, 1910	13,304	Site	15,000.00	Do.
Tullahoma, Tenn	Mar. 4, 1913	3,153	Site and building	50,000.00	Limit.
Tulsa, Okla	May 30, 1908	14,985	Site	14,800.00	Total.
Do	June 25, 1910	18,508	Building	310,000.00	Limit.
Tupelo, Miss	....do	3,915	Site and building	60,000.00	Do.
Tuscaloosa, Ala	Mar. 3, 1903	6,017	Site	7,487.15	Total.
Do	June 30, 1906	7,132	Building	149,993.54	Do.
Twin Falls, Idaho	June 25, 1910	[1] 5,258	Site	10,000.00	Do.
Do	Mar. 4, 1913	[1] 5,258	Building	85,000.00	Limit.
Tyler, Tex	Feb. 14, 1885	4,532	Site and building	56,790.10	Total.
Tyrone, Pa	Mar. 4, 1913	7,215	Site	25,000.00	Limit.
Union, S. C	May 30, 1908	5,606	Site and building	60,000.00	Do.
Union City, Tenn	....do	4,203	....do	50,000.00	Do.
Union Springs, Ala	Mar. 4, 1913	4,469	Site	4,500.00	Total.
Unionville, Mo	....do	[2] 2,000	....do	7,500.00	Limit.
Urbana, Ill	June 25, 1910	8,294	Site and building	80,000.00	Do.
Urbana, Ohio	....do	7,758	Site	13,000.00	Total.
Utica, N. Y	May 31, 1872	29,826	Site and building	413,499.55	Do.
Do	June 25, 1910	74,767	Site	134,500.00	Do.

[1] Population Apr. 15, 1910. Not separately returned in 1900.

[2] Population Apr. 15, 1910. Decrease 1900–1910.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Uvalde, Tex	June 25, 1910	4,039	Site and building	$60,000.00	Limit.
Valdosta, Ga	Mar. 3, 1903	6,182	Site	7,992.11	Total.
Do	June 30, 1906	6,871	Building	125,000.00	Limit.
Valley City, N. Dak	June 25, 1910	4,648	Site	4,800.00	Total.
Do	Mar. 4, 1913	5,235	Building	75,000.00	Limit.
Valparaiso, Ind	do.	7,193	Site and building	95,000.00	Do.
Vancouver, Wash	June 25, 1910	9,420	Site	12,500.00	Total.
Do	Mar. 4, 1913	11,102	Building	140,000.00	Limit.
Van Wert, Ohio	May 30, 1908	7,016	Site	10,000.00	Total.
Do	Mar. 4, 1913	7,371	Building	70,000.00	Limit.
Vermilion, S. Dak	do.	[1] 2,187	Site	7,500.00	Do.
Vernal, Utah	do.	886	Site and building	50,000.00	Do.
Vernon, Tex	do.	[2] 3,544	do.	50,000.00	Do.
Versailles, Ky	June 30, 1906	2,295	do.	50,000.00	Do.
Vicksburg, Miss	June 6, 1888	13,064	do.	109,422.71	Total.
Victoria, Tex	May 30, 1908	[2] 3,737	do.	95,000.00	Limit.
Vincennes, Ind	June 6, 1902	11,103	do.	72,855.53	Total.
Vineland, N. J	Mar. 4, 1913	5,548	do.	70,000.00	Limit.
Vinton, Iowa	do.	[2] 3,336	do.	70,000.00	Do.
Virginia, Minn	May 30, 1908	9,045	do.	59,916.65	Total.
Wabash, Ind	do.	8,673	do.	78,164.76	Do.
Waco, Tex	Jan. 13, 1885	10,598	do.	108,686.17	Do.
Wadesboro, N. C	Mar. 4, 1913	2,618	Site	5,000.00	Limit.
Wahoo, Nebr	June 25, 1910	2,169	do.	5,500.00	Total.
Do	Mar. 4, 1913	2,187	Building	50,000.00	Limit.
Wahpeton, N. Dak	June 25, 1910	2,472	Site and building	50,000.00	Do.
Walden, N. Y	Mar. 4, 1913	4,252	do.	65,000.00	Do.
Waldoboro, Me	Aug. 31, 1852	4,281	Site and building	24,424.68	Total.
Walla Walla, Wash	May 30, 1908	17,431	do.	140,000.00	Limit.
Wallingford, Conn	do.	8,319	do.	95,000.00	Do.
Waltham, Mass	June 25, 1910	27,919	do.	115,000.00	Do.
Warren, Ohio	June 6, 1902	8,989	do.	71,516.61	Total.
Warren, R. I	Mar. 4, 1913	7,015	Site	10,000.00	Limit.
Warrensburg, Mo	June 30, 1906	[2] 4,705	do.	7,472.35	Total.
Do	May 30, 1908	[2] 4,697	Building	65,000.00	Limit.
Warrenton, Va	June 25, 1910	[3] 1,427	Site	12,000.00	Total.
Do	Mar. 4, 1913	[3] 1,427	Building	50,000.00	Limit.
Warsaw, Ind	do.	4,558	Site	10,000.00	Do.
Washington, D. C	May 30, 1908	321,280	do.	450,189.00	Total.
Do	June 25, 1910	332,081	Building	3,049,811.00	Limit.
Washington, Ga	Mar. 4, 1913	[3] 3,065	Site and building	55,000.00	Do.
Washington, Ind	June 25, 1910	[3] 7,854	Site	5,340.00	Total.
Do	Mar. 4, 1913	[3] 7,854	Building	60,000.00	Limit.
Washington, Iowa	June 25, 1910	4,382	Site	10,000.00	Total.
Do	Mar. 4, 1913	4,415	Building	80,000.00	Limit.
Washington, Mo	do.	3,860	Site and building	60,000.00	Do.
Washington, N. C	June 30, 1906	5,685	do.	140,000.00	Do.
Washington, Pa	June 6, 1902	11,191	do.	77,147.23	Total.
Washington Court House, Ohio.	Mar. 4, 1913	7,722	do.	80,000.00	Limit.
Waterbury, Conn	June 6, 1902	55,635	do.	135,000.00	Total.
Waterloo, Iowa	June 8, 1903	16,411	do.	150,000.00	Do.
Waterloo, N. Y	May 30, 1908	3,998	Site	19,000.00	Do.
Do	Mar. 4, 1913	[4] 3,931	Building	55,000.00	Limit.
Watertown, N. Y	June 30, 1906	24,796	Building (old site)	100,798.26	Total.
Watertown, S. Dak	do.	5,603	Site and building	90,000.00	Limit.
Watertown, Wis	do.	8,677	Site	7,984.83	Total.
Do	May 30, 1908	8,754	Building	65,000.00	Limit.
Water Valley, Miss	Mar. 4, 1913	5,623	Site and building	50,000.00	Do.
Waterville, Me	May 30, 1908	11,080	do.	120,000.00	Do.
Waukegan, Ill	June 30, 1906	13,517	do.	95,000.00	Do.
Waukesha, Wis	do.	8,232	Site	24,512.41	Total.
Do	June 25, 1910	8,766	Building	75,000.00	Limit.
Waupun, Wis	do.	3,365	Site	3,400.00	Total.
Wausau, Wis	June 6, 1902	13,212	Site and building	86,694.92	Do.
Waxahachie, Tex	May 30, 1908	5,825	do.	60,000.00	Limit.
Waycross, Ga	June 30, 1906	11,194	Site	12,478.48	Total.
Do	May 30, 1908	12,856	Building	70,021.52	Limit.
Waynesboro, Ga	Mar. 4, 1913	2,932	Site	4,093.75	Total.
Waynesboro, Va	June 25, 1910	1,399	do.	7,509.00	Limit.
Do	Mar. 4, 1913	1,545	Building	50,000.00	Do.
Waynesburg, Pa	do.	3,837	Site and building	75,000.00	Do.
Waynesville, N. C	June 25, 1910	2,022	Site	5,945.00	Total.
Do	Mar. 4, 1913	2,213	Building	65,000.00	Limit.
Weatherford, Tex	May 30, 1908	5,017	Site	7,500.00	Total.
Do	June 25, 1910	5,079	Building	65,000.00	Limit.

[1] Population Apr. 15, 1910. Increase negligible.

[2] Decrease 1900–1910.

[3] Population Apr. 15, 1910. Decrease 1900–1910.

[4] Population Apr. 15, 1910. Decrease since 1900.

Statement of public buildings occupied, in course of construction, and authorized, used or intended for use in whole or in part as post offices; also sites for same, purchased or authorized—Continued.

Location.	Date.	Population.	Project.	Cost.	
Webb City, Mo	June 25, 1910	11,865	Site and building	$70,000.00	Limit.
Webster, Mass	June 30, 1906	10,470	Site	9,914.11	Total.
Do	May 30, 1908	10,994	Building	58,369.40	Do.
Webster City, Iowa	Mar. 3, 1903	4,779	Site	6,097.20	Do.
Do	June 30, 1906	4,963	Building	68,632.06	Do.
Wellington, Kans	May 30, 1908	6,502	Site and building	65,000.00	Limit.
Wellsburg, W. Va	June 25, 1910	4,220	do	60,000.00	Do.
Wenatchee, Wash	do	4,121	Site	10,000.00	Total.
Do	Mar. 4, 1913	5,100	Building	85,000.00	Limit.
West Chester, Pa	June 6, 1902	9,980	Site and building	79,952.78	Total.
Westerly, R. I	May 30, 1908	8,476	do	98,938.39	Do.
Westfield, Mass	do	15,333	do	75,000.00	Do.
Westplains, Mo	Mar. 4, 1913	2,917	Site	5,000.00	Do.
West Point, Ga	do	1,938	Site and building	50,000.00	Limit.
West Point, Miss	June 30, 1906	3,953	Site	5,000.00	Total.
Do	May 30, 1908	4,192	Building	49,850.85	Do.
Westpoint, Va	Mar. 4, 1913	1,423	Site	5,000.00	Limit.
Wheeling, W. Va	June 6, 1902	39,440	Site and building	420,014.39	Total.
Wichita, Kans	Mar. 3, 1885	13,916	do	207,769.25	Do.
Wichita Falls, Tex	May 30, 1908	7,110	do	74,950.61	Do.
Wilkes-Barre, Pa	Mar. 2, 1899	49,949	do	149,223.39	Do.
Wilkesboro, N. C	June 25, 1910	802	do	60,000.00	Limit.
Williamson, W. Va	do	[1] 3,561	Site	6,500.00	Total.
Do	Mar. 4, 1913	[1] 3,561	Building	50,000.00	Limit.
Williamsport, Pa	Aug. 3, 1882	20,714	Site and building	222,671.22	Total.
Willimantic, Conn	June 30, 1906	10,348	do	75,000.00	Limit.
Williston, N. Dak	June 25, 1910	3,171	do	100,000.00	Do.
Willmar, Minn	May 30, 1908	3,996	do	49,300.64	Total.
Willow, Cal	Mar. 4, 1913	1,211	do	75,000.00	Limit.
Wilmington, Del	Mar. 3, 1885	51,495	do	326,500.00	Total.
Wilmington, N. C	Feb. 4, 1887	19,157	do	196,913.36	Do.
Wilmington, Ohio	Mar. 4, 1913	4,747	do	75,000.00	Limit.
Wilson, N. C	May 30, 1908	6,108	do	60,000.00	Do.
Winchester, Ky	June 30, 1906	6,697	do	130,000.00	Do.
Winchester, Mass	Mar. 4, 1913	9,908	do	75,000.00	Do.
Winchester, Tenn	June 25, 1910	1,351	do	57,300.00	Do.
Winchester, Va	June 30, 1906	5,593	do	65,000.00	Do.
Windsor, Vt	Aug. 18, 1856	1,767	do	76,047.32	Total.
Winfield, Kans	June 25, 1910	6,722	do	75,000.00	Limit.
Winnemucca, Nev	Mar. 4, 1913	([2])	do	60,000.00	Do.
Winona, Minn	Mar. 3, 1885	14,014	do	159,931.70	Total.
Winston-Salem, N. C	Mar. 2, 1899	9,760	do	109,747.83	Do.
Wiscasset, Me	Aug. 12, 1848	([2])	do	32,257.25	Do.
Woburn, Mass	June 30, 1906	14,902	Site	10,076.53	Do.
Do	May 30, 1908	15,106	Building	60,000.00	Limit.
Woodbury, N. J	June 25, 1910	4,653	Site	15,000.00	Total.
Do	Mar. 4, 1913	4,804	Building	55,000.00	Limit.
Woodstock, Ill	do	4,865	Site	17,000.00	Do.
Woodstock, Va	do	1,384	do	5,000.00	Do.
Woodward, Okla	do	3,395	Site and building	110,000.00	Do.
Woonsocket, R. I	Mar. 3, 1903	30,970	Site	35,065.76	Total.
Do	June 30, 1906	34,314	Building	84,934.24	Limit.
Wooster, Ohio	May 30, 1908	6,121	Site	10,000.00	Total.
Do	June 25, 1910	6,137	Building	65,000.00	Limit.
Worcester, Mass	June 29, 1887	75,857	Site and building	403,000.00	Total.
Wyandotte, Mich	Mar. 4, 1913	8,902	do	75,000.00	Limit.
Wytheville, Va	May 30, 1908	3,043	Site	5,000.00	Total.
Do	June 25, 1910	3,055	Building	60,000.00	Limit.
Xenia, Ohio	May 30, 1908	8,704	Site	10,000.00	Total.
Do	June 25, 1910	8,706	Building	65,000.00	Limit.
Yankton, S. Dak	June 6, 1902	[3] 4,056	Site	6,987.61	Total.
Do	Mar. 3, 1903	[3] 4,031	Building	81,499.20	Do.
Yazoo City, Miss	June 30, 1906	6,068	Site and building	60,000.00	Limit.
Yoakum, Tex	June 25, 1910	4,679	Site	1.00	Total.
Do	Mar. 4, 1913	4,994	Building	65,000.00	Limit.
Yonkers, N. Y	June 30, 1906	67,563	Site and building	500,000.00	Do.
York, Nebr	Mar. 3, 1903	5,438	Site	9,094.39	Total.
Do	June 30, 1906	5,803	Building	69,376.41	Do.
York, Pa	May 24, 1890	20,778	Site and building	86,000.00	Do.
Do	June 30, 1906	40,462	Site	107,989.92	Do.
Do	May 30, 1908	42,587	Building	266,909.69	Do.
Youngstown, Ohio	Jan. 21, 1891	33,967	Site and building	75,000.00	Do.
Ypsilanti, Mich	June 25, 1910	[4] 6,230	do	75,000.00	Limit.
Zanesville, Ohio	June 6, 1902	24,460	do	109,972.05	Total.

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[1] Population Apr. 15, 1910. Not separately returned in 1900.

[2] Not separately returned. Can not estimate.

[3] Decrease 1900–1910.

[4] Population Apr. 15, 1910. Decrease 1900–1910.

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PREPARATIONS FOR PEACE

AN ADDRESS

DELIVERED ON THE OCCASION OF THE NINETY-SEVENTH
CONVOCATION OF THE UNIVERSITY OF CHICAGO
DECEMBER 21, 1915, AND BEFORE THE
INDUSTRIAL CLUB OF CHICAGO
ON JANUARY 27, 1916

BY

HON. WALTER L. FISHER
FORMER SECRETARY OF THE INTERIOR

PRESENTED BY MR. LA FOLLETTE
FEBRUARY 14, 1916.—Ordered to be printed

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1916

PREPARATIONS FOR PEACE.[1]

Walter L. Fisher, former Secretary of the Interior.

Half truths are dangerous because the element of truth which they contain carries conviction and easily leads to its application far beyond the real significance to which it is entitled. We are at present in grave danger of just such a misconception of one of the most prevalent statements with regard to military preparation. The sentiment of this country is undoubtedly opposed to militarism. Our ideals and purposes are peaceful. No imperialistic propaganda could hope to succeed if its character and purposes were understood. The agitation for increasing our military forces is as a whole genuinely peaceful in its purpose. Certainly it makes its great appeal upon the ground that preparation for war is essential for the preservation of peace. The proverbs of the ancients and the utterances of our early Presidents are the mottoes it repeats: *Si vis pacem para bellum*, "If you wish peace prepare for war."

And undoubtedly in a world where selfishness and greed and lust of power still move the mass and the rulers of men to the extent they do to-day, where force is still believed to constitute a necessary if not a proper means of advancing national interests and national ideals, military preparation against war is an essential for securing peace. But there is real danger that we shall be misled—or may deceive ourselves—into believing that preparation for war is the most important thing for us if we desire to secure our own peace and to promote the peace of the world. Nothing, it seems to me, could be more unfortunate than such a result. If we wish peace, the most important thing is not to prepare for war—although that we should do. If we wish *peace*, the most important—the all-important—thing is to prepare for *peace*; to do the things that make for peace and that promote peace, not the things that make for war and promote war. And yet these peaceful measures are the things that are receiving scant attention.

I am led to present to you some thoughts upon this subject because the significance of the great war in which the larger part of the civilized world is now engaged is the one absorbing interest of our whole intellectual life. I have no thought that I shall say things that have not been better said by others—that I have anything original to impart. I am moved by a deep conviction that mankind is struggling with destiny as it has seldom struggled before, and that it is the duty of every man and woman—and especially of every educated man and woman—to think of this world war, its causes, and its probable results; and, as his thoughts become at all definite, to express them, if it be only in confirmation of, or dissent from, the views expressed by others which are likely to affect public opinion and public action. It is a time for each human being, in humility and sincerity, to ask himself: "What do I think? What is the explanation of this appalling catastrophe and what is to follow it? What should and what can I, in my tiny circle of possible action, do to help, if ever so little, toward a right solution of the problems it presents?"

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[1] Delivered (in part) as an address on the occasion of the Ninety-seventh Convocation of the University of Chicago held in Leon Mandel Assembly Hall, December 21, 1915. Delivered on January 27, 1916, before the Industrial Club of Chicago.

What might be called its purely academic interest is greater than any other interest of the student. It pervades the library and the laboratory, the classroom and the lecture hall, and the quiet cloisters of the university. What a compelling stimulus to intellectual activity it is; what a zest it adds to all our studies in physical, political, social, and economic science; to what fierce tests it is subjecting our theories of human progress and social evolution!

There is nothing, indeed, so instructive, so absorbing, so essential for us—as individuals and as a nation—to understand as the mighty conflict that is now going on; its causes and its consequences, its horrors and its folly. It is important for all of us to appreciate the reality of its horror. But I am not qualified to picture this horror if I would, and this is not the place or the occasion. It is fitting, however, for us to consider its folly, and how we in the future may escape such folly. "Wisdom is the principal thing; therefore get wisdom: and with all thy getting get understanding."

There is a call for the public service of educated men and women such as has not been heard in the world since the French Revolution. For we must go back to France and the Napoleonic era for any such epochal events as are happening in the world to-day. It is quite possible, perhaps it is exceedingly probable, that the actual consequences upon our whole intellectual, social, political, and economic outlook that will follow and result from this war will be greater than those that followed even that great upheaval of civilized society. It is only as we understand how fundamental are the issues that are forced upon us that we shall meet those issues intelligently and wisely. Our danger, and the danger of Europe, is that we shall see its causes and effects superficially and shall devise superficial remedies and adopt a superficial settlement. There are so many essentially superficial phases of the situation that are nevertheless so important and so compelling in their interest that we can all be forgiven for misconceiving their relative importance compared with the deeper issues; but it is only as we find and face these deeper issues of transcendent consequence that we shall work good out of this awful evil that has fallen on mankind.

Already the danger of one great folly from a superficial view of this war has become apparent, and that is that we shall think of it as due to and as an exhibition of ruthless military power; that it is due to what is called Prussianism, and that if we could just curb and destroy Prussianism the world could go on quite satisfactorily, upon the whole, and without any serious or fundamental disturbance of the established social, political, economic, and intellectual order. No mistake could be made so disastrous to the future peace and progress of mankind as this. Even if the Prussian war god sits the saddle in Germany to-day, waging war with a ruthlessness that appalls mankind and an efficiency that compels its admiration, nevertheless, how pitiful would be the conclusion that what appalls us is not war, but merely the ruthlessness and efficiency with which it is made.

It was an American thinking of war in America who said that "War is hell!"—not German war or English war or Russian war, but war, wherever waged or by whatever nation. There was never a great war waged that did not produce all the atrocities of this war, on one side or on both. The scale of the atrocities may be greater, as the scale of this war is greater. Even the doctrine of frightfulness is a doctrine that has been defended and practiced by every nation, even our own, within such limits and under such conditions as each nation has determined for itself at the time and according to its exigency as it saw it. There are few follies equal to the folly of imagining that war can be made humane.

Our own "Instructions for the government of armies of the United States in the field" (General Orders, No. 100, 1863), issued under Abraham Lincoln, the most humane of Presidents, and again issued without modification during the War with Spain in 1898, announced:

> To save the country is paramount to all other considerations.

And—

> 18. When the commander of a besieged place expels the noncombatants in order to lessen the number of those who consume his stock of provisions, it is lawful, though an extreme measure, to drive them back, so as to hasten on the surrender.
>
> 19. Commanders, whenever admissible, should inform the enemy of their intention to bombard a place, so that the noncombatants, and especially the women and children, may be removed before the bombardment commences. But it is no infraction of the common law of war to omit thus to inform the enemy. Surprise may be a necessity.

No matter how clear the evidence may seem to some of us to-day, we are too near the event to be sure of our perspective. We must not forget how often "knowledge comes, but wisdom lingers." Even if we make certain that Servia was the occasion, not the cause, of this war; that Germany had prepared for "the day" and that she chose the day which she thought was most favorable to her; that she, and no other, precipitated this horrible cataclysm of cruelty and destruction—even if we spare whatever nation is responsible, no part of the just condemnation of mankind for touching the match to the powder that had been so assiduously laid throughout Europe and that needed only the match—how blind, how pitifully and perversely blind, we should be not to recognize that the fundamental error consisted in having a state of international relations that was prepared for the match; that the fundamental responsibility, deeper than Prussianism, was with the nations that built and maintained their civilizations over a powder magazine! Without now discussing whether any other basis of internationalism is practicable than the basis of national armament and of military force, how foolish, how unfair, to say that in a society of nations based on force that nation which acquires and uses the greatest and the most efficient force is exclusively to blame for an explosion that leads to a test of force! The matured and distant judgment of mankind will be little concerned with awarding praise or blame on the basis of the relative extent or officiency of military preparation, or even of the relative ruthlessness with which military force was used in a state of society based on force and on the use of force to secure or to retain the right to exploit other lands and peoples.

The truth is that the really great differences between the warring nations are only differences of degree—degrees of militarism, degrees of democracy, degrees of political and economic intelligence. I do not minimize these differences. So gigantic is the scale on which the world movement proceeds that these differences of degree become of huge dimensions and importance when the diverging lines are projected into the expanded field of action. In war, international differences are centrifugal. Chasms widen as the circumference of the conflict expands and the conflict becomes more intense. War distorts and exaggerates and intensifies every difference of national feeling, every national misunderstanding. If, however, it be true that Germany is more militaristic than England or France or Russia or Italy, it is true only as a statement of the degree in which each of these nations has been and is militaristic. If it be true that Germany believes that she has a national ideal and peculiar national interests—political, economic, intellectual—which can be advanced by military force, the same thing is true of each of her rivals. If it be true that militarism in Germany is a menace to the world, it is also true that militarism in the rest of Europe is a menace to the world. Does Germany believe that she has a peculiar mission to perform in the unfolding of civilization, that her form of political organization, her economic and intellectual processes, offer the greatest assurance of human progress, and that it is her duty as well as her right to impose this *kultur* on the world? England has been obsessed by the same megalomaniac folly. So have we. If, happily, we are less sure that we are the people, and that wisdom is in danger lest it die with us, can we claim anything more than that we have seen the futility of such egotism, ever so little sooner and ever so little more clearly than some others? Are John Bull and Brother Jonathan types of modest self-effacement and humility before the slowly unfolding secrets of the universe?

We have been reading much of the lords and prophets of war in Germany; but have they uttered anything more frankly militaristic than Lord Roberts, "Little Bobs," the military idol of Great Britain?

> How was this Empire of Britain founded? War founded this Empire—war and conquest! When we, therefore, masters by war of one-third of the habitable globe, when *we* propose to Germany to disarm, to curtail her navy or diminish her army, Germany naturally refuses; and pointing not without justice to the road by which England, sword in hand, has climbed to her unmatched eminence, declares openly or in the veiled language of diplomacy, that by the same path, if by no other, Germany is determined also to ascend! Who amongst us, knowing the past of this nation, and the past of all nations and cities that have ever added the luster of their name to human annals, can accuse Germany or regard the utterance of one of her greatest a year and a half ago [or of General Bernhardi three months ago] with any feelings except those of respect?

Norman Angell, in his recent book on *America and the New World State*, has collected this and many other quotations which demonstrate that there is an "Anglo-Saxon Prussianism" which differs only from German Prussianism in the extent to which it has attained popular support or official power. And yet it was the bitter complaint of Bernhardi and Trietschke that their ideas had so little influence among the people or in official circles. The most interesting to me of all Angell's quotations is that from the Belgian author, Doctor Sarolea, who, in his book on *The Anglo-German Problem*, says:

> What is even more serious and ominous, so far as the prospects of peace are concerned, the German who knows that he is right from his own point of view, knows that he is also right from the English point of view; he knows that the premises on which he is reasoning are still accepted by a large section of the English people. Millions of English people are actuated in their policy by those very imperialistic principles on which the Germans take their stand. After all German statesmen are only applying the political lessons which England has taught them, which Mr. Rudyard Kipling has sung, and Mr. Chamberlain has proclaimed in speeches innumerable. Both the English Imperialist and the German Imperialist believe that the greatness of a country does not depend mainly on the virtues of the people, or on the resources of the home country, but largely on the capacity of the home country to acquire and to retain large tracts of territory all over the world. Both the English Imperialist and the German Imperialist have learned the doctrine of Admiral Mahan, that the greatness and prosperity of a country depend mainly on sea power. Both believe that efficiency and success in war is one of the main conditions of national prosperity.
>
> Now as long as the two nations do not rise to a saner political ideal, as long as both English and German people are agreed in accepting the current political philosophy, as long as both nations shall consider military power not merely as a necessary and temporary evil to submit to, but as a permanent and noble ideal to strive after, the German argument remains unanswerable. War is indeed predestined, and no diplomatists sitting round a great table in the Wilhelmstrasse or the Ballplatz or the Quai d'Orsay will be able to ward off the inevitable. It is only, therefore, in so far as both nations will move away from the old political philosophy that an understanding between Germany and England will become possible. * * * It is the ideas and the ideals that must be fundamentally changed: "Instauratio facienda ab imis fundamentis." And those ideals once changed, all motives for a war between England and Germany would vanish as by magic. But alas! ideas and ideals do not change by magic or prestige—they can only change by the slow operation of intellectual conversion. Arguments alone can do it.

Let us turn from the war lords of England and Germany to those who do not speak under the influence of military training or military occupation. We are told by the translator of Dr. Paul Rohrbach's book, *The German Idea in the World*, that it—

> probably inspired more Germans than any other book published since 1871, for everybody felt that it presented a generally true picture of the Fatherland and indicated the paths which the Germans had resolved to follow.

This opinion I have had substantially confirmed by most competent authority. I think it gives us a real insight into the ideas that have moved the German people. You will note that the author does not hesitate to praise the Anglo-Saxon or to criticize the German, and that his underlying and dominating purpose is peaceful expansion.

> The markets of the world! We need them to-day for our existence as positively as we need our own land, and the day is approaching with irrevocable certainty when we shall need them even more. We can be nationally healthy only so long as our share in the business of the world continues to grow, and only if this is the case shall we be able to foster the inner values which spring from our national idea, and let them take part with the other factors in the shaping of the culture of the world. * * *
>
> The German idea, therefore, can only live and increase if its material foundations, viz, the number of Germans, the prosperity of Germany, and the number and size of our world interests continue to increase. As these foundations continue to grow they compel the Anglo-Saxons to make their decision between the following two propositions:

> Will they reconcile themselves to seeing our interests in the world maintain themselves by the side of their own and come to an agreement with us concerning them? Or will they fight, with force of arms, to remain the sole mistress of the world? If they choose the latter, it will depend on our strength whether we conquer or surrender or hold our own. * * *
>
> We have progressed within a generation with a rapidity which creates the belief that we can wipe out within a decade the losses of a century. But we grow dizzy when we contemplate our political economy shooting up to steep heights and resting only on the small support of European Germany, especially when we compare it with the much wider security across oceans and continents which England and America have built. It is here where the abyss is lurking into which our new grandeur may be hurled unless we secure it with stronger props than are made of iron or gold. We have now reached the point which illustrates a fact which no one can view too seriously, namely, that the world power of the Anglo-Saxons does not rest solely on external support, such as wealth, colonies, dominion over the seas and flourishing industries, but that corresponding to these material possessions a growth of character and of inner worth and an increase in the breadth of the Anglo-Saxon idea have actually justified the people possessing them in reaching out for the dominion of the world. * * *
>
> The true attitude of England toward our navy and commerce is revealed by such comments as were contained in the famous article in the *Saturday Review* of September, 1897, which made a great stir in England and the whole world, and frankly stated that England's prosperity could only be saved if Germany were destroyed. "England," the article says in part, "with her long history of successful aggression, with her marvelous conviction that in pursuing her own interests she is spreading light among nations dwelling in darkness, and Germany, bone of the same bone, blood of the same blood, with a lesser will force, but perhaps with a keener intelligence, compete in every corner of the globe. In the Transvaal, at the Cape, in Central Africa, in India and the East, the islands of the Southern Sea, and in the far Northwest, wherever—and where has it not?—the flag has followed the Bible and trade has followed the flag there the German bagman is struggling with the English peddler. Is there a mine to exploit, a railway to build, a native to convert from breadfruit to tinned meat, from temperance to trade gin, the German and the Englishman are struggling to be first. A million petty disputes build up the greatest cause of war the world has ever seen. If Germany were extinguished to-morrow, the day after to-morrow there is not an Englishman in the world who would not be richer. Nations have fought for years over a city or a right of succession. Must they not fight for two hundred fifty million pounds of commerce?"

Doctor Rohrbach says:

> We know very well that it does not reflect the feelings of the whole of England, but nevertheless of a considerable portion of the English Nation. * * *
>
> The two political catch words, "reaction" and "government by feudal classes," which foreign public opinion frequently uses to describe German conditions, are not calculated to bring success to the German idea in the world. But they are not the only obstacles. Like other people, we suffer from the defects of our virtues. The reverse and unfortunate complement of that sense of duty and industry, which we call the positive poles of our character, are an offensive superiority and awkwardness of behavior, which are constantly putting us at a disadvantage. * * * Between these two observations there is so much German awkwardness, indolence, and ignorance of the national idea in its highest sense that we can explain the progress abroad which we have made only by the one thing in which we excel all other people: our exact and conscientious labor and our remarkable diligence.

The real evil lies in the doctrine of political and economic imperialism common to so many nations—the doctrine that holds that the economic welfare and progress of every nation and of its people depend upon securing constantly expanding markets and sources of supply, constantly expanding opportunities for trade, and that such opportunities are only to be found, or at least are best to be found, by acquiring political dominion over or spheres of influence in other countries, especially in countries relatively backward in industrial

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Our defense must be real or it will only add to our danger. Within the limits of what is strictly necessary for defense our preparation must be made as though it were certain to be needed. No fear that other nations will be led by our example to increase their armament unnecessarily can stand for one moment against the possibility of our need. What is incumbent upon us is to make it as clear as possible that the character and the extent of our military preparation are strictly defensive; indeed, our first inquiry should be into the possibilities of a military policy that will be on its face and in its essential characteristics defensive.

With the greatest deference, and subject to correction by demonstration and not by assertion, I venture to suggest that there is such a thing as a defensive military policy, which is essentially different in important particulars from an aggressive military policy, and that the plans for military and naval preparedness which are being presented to us either by the President and his political advisers, or by the General Board of the Navy, or the General Staff of the Army, do not recognize or apply the distinction.

I am not discussing these things as an expert, nor do I assume that my audience is composed of experts. I am, however, not without the support of expert opinion, although it has not been allowed much public expression. And I assume that the great audience of our ordinary fellow citizens, as inexpert but as intensely and vitally concerned as we are, will in the end settle our military policy on sea and land, for this is necessarily the way of democracy. Admiral Mahan says:

> Justly appreciated, military affairs are one side of the politics of a nation and therefore concern the individual who has an interest in the government of the state. They form part of a closely related whole, and putting aside the purely professional details * * * military preparations should be determined chiefly by those broad political considerations which affect the relations of states one to another or of several parts of the same state to the common defense.

Robert Wilden Neeser, whose book, *Our Navy and the Next War*, is an argument for greater naval strength, nevertheless says:

> In the last analysis it is the people who govern, it is the people who must be informed of their military condition. The regulations which forbid military and naval men writing for publication for the purpose of discussion should be rewritten. The freest discussion on all military and naval topics by officers of both services should be encouraged, such writings to be signed by the authors, for which they would assume the entire responsibility. When this privilege has been given, then the people will have a means of getting at the truth and the authority in each case will be known. By sealing the lips of those capable of giving the truth we have encouraged scarehead articles upon our naval preparedness which carry little weight and make no lasting impression upon the minds of the people.

Major-General Francis Vinton Greene has also called attention to the fact that Germany permits publication of frank discussions of military subjects—several thousand military books in a year as against several scores at the most in English-speaking countries.

At all events, whether they like it or not, the experts must convince us, untrained as we are. What we want and what we are entitled to have is candor and the fullest, freest opportunity for the expression of every sincere and intelligent judgment that has been or is being formed within our military and naval service. We are dealing with what is alleged to be and what we believe is matter of life and death.

On such a matter the order prohibiting officers in our military establishment from uttering and publishing opinions upon military policy[1] seems especially unwise and leaves the country altogether too dependent upon the officials or official boards that for the moment control the administration of our military and naval service. In that service are experienced and serious students of the problems of military and naval policy whose views upon fundamentals and upon important details disagree with the views of both the military and the political heads of our military and naval establishments. These differences of opinion are not being given to the public. We are thus being led to the unwarranted conclusion that there is unanimity among our experts as to the kind and extent of military preparation we should have.

I am a convinced advocate of securing and utilizing expert advice in the administration of public affairs. I have the highest regard and respect for the officers in our naval and military service. I attach the greatest importance to their opinions with respect to the things that will produce the most efficient military preparation for war and that will produce the greatest results in actual warfare. But what we are deciding is not the sort of an army or navy that will be most powerful in war, but what sort of an army or navy will be most effective for securing peace. And that is a question which involves issues of national policy that are not exclusively military—in which, indeed, the military motive is of secondary importance.

We must tell the Navy Board and the General Staff—not have them tell us—what it is we want an army and a navy to do; what are the purposes for which we wish to use an army and a navy. Then and then only can they tell us what kind of an army and navy will be best adapted for our purpose. Otherwise their opinions and estimates must necessarily be based on the assumption that we want a military establishment adequate to defend all our outstanding possessions and obligations, and to maintain all our supposed national policies and interests, and in the event of war, in the language of the recent report of the War College, "to insure a successful termination of the war in the shortest time."

All this may sound somewhat captious and theoretical, of little practical value, but I am not without knowledge that there exists among military experts—and in our own military service—a recognition of the fact that there is a substantial difference between a defensive and an offensive military policy and that it is not being recognized in the plans which are officially recommended for our military preparation. We are being urged to support a military program which we are assured is intended only for defense; but it is not an exclusively defensive program. I do not intend to impugn in any degree the sincerity of its advocates—I think they believe that they are advocating a defensive policy; but they have not defined nor had defined for them what it is we wish to defend, nor have they abandoned that hoary maxim of military science that a strong offense is the best defense.

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[1] "Officers of the Army will refrain, until further orders, from giving out for publication any interview, statement, discussion, or article on the military situation in the United States or abroad, as any expression of their views on this subject at present is prejudicial to the best interests of the service."—War Department, General Order No. 10.

We shall make a serious mistake in all that we do toward military preparedness against war and for peace unless we tell our military experts, and tell them in a way that they will understand and accept, that we want a military establishment planned and prepared for defense and not for offense, even though offense may help defense—that we consciously and definitely intend to abandon and to have them abandon whatever military advantage there may be in having an army and a navy prepared to take the aggressive and to seek out and attack in force an enemy away from our own boundaries and waters. Only in this way can we convince the world that our object is pacific, that we are not merely repeating the hollow assurances of other nations that have built great navies and trained great armies in the name of peace only to use them for aggression when the opportunity and the temptation came. Only in this way can we be sure that we shall not yield to temptation when it comes. What is there in our national history to justify the claim that we will not use force to extend our boundaries or our dominion over the lands of weaker nations, no matter how sincerely at this time we intend not to do so? What right have we to thank God that we are not as other men, especially those Prussians? With an army and a navy designed for and substantially limited to the defense of our own lands and shores, we can with some confidence and effectiveness advocate those principles and agencies of international policy that are best adapted to reduce the chances of war.

To illustrate what I have in mind, and not I alone, but others whose military experience and training give greater weight to their opinions, let me ask you whether it is not clear that a real substantial clarification of the Monroe Doctrine, adopting and extending the suggestions of President Wilson's message, would not in itself do more to make war against this country unlikely than all the increase we are likely to make in our army and our navy? We hear much of possible war with Japan. Should we not do more toward the prevention of such a war by discussing with Japan the issues surrounding Japanese immigration and the Open Door in China man fashion and in a way and with results that would do justice to our interests and to Japanese interests and to that self-respect which Japan has earned her right to entertain? If we really intend to give national independence to the Philippines, should we not remove a great menace to our peace if we could secure international guaranties of the sovereignty and territorial integrity of the Filipino nation? If we should open the Panama Canal to the warships of all nations under international guaranties of the safety of the Canal itself and of our peaceful ownership and operation of it, should we not make it a prize less likely to excite the cupidity of other nations and less likely to lead to war with us? If we did these things, should we not need an army and a navy quite different in character and size from those we should need if we do not do them? Can we intelligently determine what sort of an army and a navy we need without considering what it is we propose to defend? If we retain all these possessions and interests and international policies, where can we stop in our military preparation? What folly to retain them if we do not propose to make serious and adequate preparation to defend them, and could not make really adequate preparation if we would.

It may be said that these matters really make no difference in the sort of military preparation we ought to make—that it will require the same sort of an army and the same sort of a navy to defend our own lands and waters that we should need to defend the Philippines and the Panama Canal and to enforce the Monroe Doctrine. No doubt some military authorities would make precisely this claim; but I venture to assert that excellent military authority is of quite a different opinion, and that it is supported by many considerations that appeal and should appeal to that great public which under our democratic government must and should decide the fundamental questions of policy directly involved.

We are at least entitled to ask questions. If our navy is intended only to defend our own shores from invasion, could we not enormously increase the number of our submarines for the same money that it is proposed to spend on dreadnaughts; and would not the result give us a far more effective navy for purely defensive purposes? Does not a single superdreadnaught cost as much as many submarines, depending on the types selected? If modern war—if this war—has taught us anything, it is that a navy of the dreadnaught class is of little if any practical value against a stronger navy of the same sort. The weaker navy is inevitably bottled up. It dare not come out into the open unless it is prepared to risk all upon the result of its unequal contest with a stronger force. Unless we are prepared to enter the endless competition in naval expenditure, is not the navy of the era that ended with this war a waste of money and a self-deception as an efficient instrument of defense? Is not this confessed by the insistence of those who cling to this type of navy that the United States must increase its navy until it equals the navy of any other nation? Some say any other nation except England, either because they are appalled at competition in naval expenditure with England, whose existence as a world power depends upon predominance at sea, or because they think we should assume that war will never occur between England and the United States. Some insist that we must have a navy equal in aggressive strength to the combined navies of any two other nations except England; and that anything less than this will leave us without adequate protection for the very reasons that are given as underlying the dreadnaught naval theory. Has not this war demonstrated that a navy composed chiefly of great numbers of submarines, supplemented by the torpedo boat, the destroyer, and the aeroplane, would be of immense defensive value against the most powerful dreadnaught navy afloat? Is not a single submarine an effective fighting unit against any fleet, while a single dreadnaught is of practically no value whatever? Might not a few submarines encounter and destroy a mighty fleet, while a dreadnaught navy outclassed in strength by an invading squadron would lie impotent in the harbor? Are we not about to commit this nation to a program of dreadnaughts that need yet more and more dreadnaughts to make them useful? Is it not wise to delay this program at least until we can know more than is now possible as to the place of the dreadnaught in the future navies of the world? Secretary Daniels says that expert opinion on this subject has undergone great fluctuations within the past few months. He has himself substantially increased the number of submarines for which the Navy Department is asking over the number recommended by the Navy Board. Why not spend our dreadnaught money, at least for the present, on submarines and other defensive agencies? Even Neeser asks the question: "With the offensive submarine now a certainty, should we continue to build battleships?" And his answer is an evasion and is also based upon the premise that "the ultimate aim of war is to command the sea." Having already called the offensive submarine "a certainty," he says: "The new cruising submarine, if a success, may become a serious menace to a battleship fleet; but it does not seem a sufficient menace to stop the construction of those ships which have so long and in the face of all challengers held command of the sea."

But it may be said that such a navy as I am discussing could not be used so effectively as the dreadnaught in foreign waters away from its base. Precisely so; and is not this one of its chief advantages to us? Could we do anything that would so effectively stamp our military policy as intended only for defense as to create a navy that, while powerful for defense would by its very character have less power for aggression? If we wish only to defend ourselves, do we need any other navy? Can we do anything that will so completely convince the world that we mean what we say when we declare that we are arming only for peace? Can we do anything that will so increase our power to influence other nations to adopt the policies and the agencies that make for peace? Even if we had to concede that a defensive navy would lack some of the aggressive power that we might desire in actual warfare, can we not well afford to make this sacrifice for the immense gain in making war less likely to occur?

Is it not a choice between this policy and the race for naval supremacy which alone will enable us "to command the sea"? Norman Angell may be urging some propositions about which there may well be difference of opinion, but he has at least convincingly demonstrated one fallacy:

> Mr. Churchill lays it down as an axiom that the way to be sure of peace is to be so much stronger than your enemy that he dare not attack you. One wonders if the Germans will take his advice. It amounts to this: Here are two likely to quarrel; how shall they keep the peace? Let each be stronger than the other, and all will be well. This "axiom" is, of course, a physical absurdity. On this basis there is no such thing as adequate defense for either. If one party to the dispute is safe, the other is not, and is entitled to try and make itself so.

Is there not a distinctively defensive policy applicable to the army just as to the navy? The arguments for increased land forces and reserves seem entirely sound. But this does not relieve us—even us laymen—from the necessity of considering what they should be and how they should be obtained. I do not propose to discuss details of military organization. It is important, however, for the public to understand that there are differences of opinion and of interest in the army as to what branches of the service should be increased. I am expressing no opinion, except that there should be complete freedom in the service for the public discussion of the issues.

All the military opinion about which I know anything is agreed that for a defensive policy we need trained officers, trained infantry, trained artillery, adequate equipment, and both an adequate supply of munitions and provision for increasing and maintaining an adequate supply of the things for which modern war makes such insatiate demands. Does the program of preparedness that has been prepared for us contemplate these things? We are told that our preparation must be a genuine and a serious thing, that at the close of this war some victorious nation or combination of nations may decide to use its trained and veteran troops against us in resentment, or envy or lust of power or hope of loot, and that we must be ready and remain ready, that we must keep our powder dry. We are told that only thorough training and the very best equipment for an army in the leash would avail for our defense. And how is it proposed to secure such an army? Make a small increase in our regular troops and give a citizen soldiery annually a few months' intensive training that will not interfere too seriously with their business and professional occupations. Is there then no serious need for preparing against the possibility of a real invasion?

The truth is that at and for some time after the close of this war the United States may be in less danger from attack than at any time in its history. We all hope with differing degrees of confidence that out of the horrors and destruction of this war will come a real advance toward some form of international relations and international arrangements that will reduce the burdens of armament and the probabilities of war. If our hopes were really more than hopes, this nation might well await the outcome without increasing at this time its military establishment—not that we might not then take wise precautions to meet the actual situation that will then be disclosed, but that we could be so much wiser then than we possibly can be now. It is because our hopes are only hopes, and not certainties, that we are urged to prepare now against a possibility that might be so unspeakably disastrous to this country, to its men, and especially to its women and its children, that we are not justified in delaying at least adequate preparation to resist attack. But if we are really to prepare against a real attack, what folly it is to be less than adequately prepared. We should analyze the situation that is at all likely to confront us and meet that situation. What is the situation?

It seems clear that we need anticipate no attack from Great Britain or indeed from any of her allies for some time after this war, no matter what its outcome, unless we ourselves furnish some new and gratuitous occasion for a quarrel. For a hundred years we have settled amicably every issue with Great Britain, and many of the issues have been peculiarly irritating and important to both nations. Our substantive relations were never more sympathetically friendly, and new causes would have to arise to strain them. Our diplomatic relations were never so assured by treaties providing for the peaceful settlement of issues upon which we may disagree. Certainly this is true of Great Britain; and with her friendship and the already increased and growing appreciation of the reality and value of the Anglo-Saxon tie, a war between the two great Anglo-Saxon nations is practically unthinkable. I mention Great Britain because it seems not worth while to discuss the effect of our proximity to Canada in the event of war. Canada is probably a hostage in our reach against war with England; but let us assume that it would be a military asset for Great Britain. No other first-class power except England has any foothold in North America from which land forces could be drawn or in which they could be landed. Any other formidable enemy would be compelled to transport its invading army across the ocean. I have had no opportunity to examine or to discuss with military officers in whose judgment I have confidence the recent report of the War College Division of the General Staff. We are all, however, entitled to question its soundness or its availability, as the President and the Secretary of War have questioned them. They are civilians like ourselves.

General Greene, however, has discussed at some length the problems presented to us in the event of such invasion and has advised us of the conclusions of such military students as Freiherr von Edelsheim in the service of the German General Staff. His conclusion is that our initial problem would be to prevent the landing, or to defeat after it landed, a force of 240,000 infantry with the ordinary normal complement of cavalry, artillery, stores, etc., and that this is the largest force that it would be practicable to transport to our shores as a single expedition. The War College now makes a larger estimate. Germany has permitted the public discussion of military problems of this sort. We have refused or restricted it. The weight of available military authority, however, seems agreed that we should have 500,000 trained soldiers to meet an invasion, and that this number of really trained men adequately equipped would successfully repel the invasion. It may be that, considering the disadvantages attending disembarkation, substantially less than this number would suffice for effective defense, provided they are trained soldiers, and not half-trained militia or national guardsmen. I speak in no terms of disrespect of our militia—quite the contrary. I merely insist upon the fact, recognized by the intelligent militia officers themselves, that men in active civil life who give all the time they can to military training can not successfully oppose regular troops. The militia can quickly become an army, but it can not be an army; and what we should need if an invasion threatened us would be an army. Then let us have an army—no larger than we need for the purpose of manning our defenses and repelling an invasion, but a real army of real soldiers adequate for this purpose and a militia adequate to fill the ranks as they need filling. I do not say 500,000 men; I say what number we need for the defensive purpose which we intend to accomplish.

The suggestion of universal military service in this country can be intelligently determined only by considering separately each of the objects for which it is alleged to be desirable. Its main—its real—purpose is military. If it is not necessary or at least desirable for strictly military purposes, it will never be adopted because of its alleged physical or disciplinary benefits. And for what conceivable purpose of military defense should we train to arms millions of the young men of the United States? From a military point of view this surely would be a senseless waste of time, energy, and money. If we are to have an army, let us have a real army, trained and efficient for its purpose. Let us have no superficial training of millions of schoolboys, no amateurish conscription of the adult manhood of the nation, creating a paper force immensely greater than any possible need for any purpose that we ought to entertain, only to demonstrate its inefficiency if a test of strength should come, to disseminate through the nation a false feeling of security, and to encourage the natural tendency toward brag and bluster to which Brother Jonathan has been unfortunately susceptible.

There is undoubtedly a strong feeling in the United States that, no matter what we should do in the way of military preparation, we should be in no danger of imperialistic ambition or that aggressive militarism which precisely the same policy has undoubtedly tended to create elsewhere. There is far greater danger from these sources than our people realize. This false assumption of a superior resisting power of Americans to the allurements of imperialism and national expansion only makes the danger more real. Human nature is essentially the same in Prussia and in the United States.

It is not in Germany alone that the Nietzschean exaltation of the Will to Power stirs the atavistic savage that lingers in most of us and in some of us to an exceptional degree. Few Americans may believe that war is a biological necessity, but many are easily persuaded that it is a necessity on other grounds, and its exhibition of primitive virtues and barbarian vigor distracts attention from its hideous cruelties and its senseless waste. We need to be constantly reminded that mankind is not degenerating because it is finding less use for some superb qualities of the animal and the savage, that evolution is out of the jungle, not back into it.

If German blood or German training makes men more prone to exalt force in international affairs, it will be well for us to remember that in 1910 there were in the United States 8,282,618 people who were born in Germany, or one or both of whose parents were born in that country. This takes no account of more than 2,000,000 of our population similarly derived from Austria.

If the United States is to have increased military forces—and it seems essential that we shall—let us not be blind to the dangers that are inseparable from military training and military strength. Let us endure with patience the taunts of the militant pacifist whose motto is "Speak softly and carry a big stick." I try sometimes to visualize that peace-loving and peace-seeking community in which that motto is carried into practical effect, as its distinguished author illustrates it in his own delightful way. Picture to yourselves the citizens of Chicago leaving their homes in the morning, each armed with a big stick, suited to his taste—one with beautifully polished knobs on the heavy end of the stick and one with nails carefully disposed upon its surface, to emphasize the value of the weapon as a deterrent of force and an incentive to peace—each swinging his little pacifier jauntily as he trudges sturdily or saunters leisurely along, speaking softly to those he passes about mollycoddles, cowards, and the Ananias Club. How certain it would be that no thought of violence would disturb the peaceful serenity of such a happy community. It is an excellent motto, but hard to live up to, and we shall do well not to underestimate the difficulty. Nations, like individuals, when they carry big sticks, seem predisposed to raise their voices.

It is said that the disbandment of our armies after the Civil War demonstrates that military training will not create a militaristic sentiment in the United States, but it is not from those who have had actual experience in war and have gone through the pit of hell, or at least looked into its mouth, that we need fear militaristic sentiment so much as from the man who has merely worn the trappings and studied the manual of arms. It is the little knowledge that is the dangerous thing.

Has consideration been given to the political dangers of an organized citizen soldiery containing millions of men, who would not regard the military work seriously because war would not really seem imminent?

The suggestion of a new sort of army—a continental army—is obviously due to the desire to meet the difficulty of putting the militia under direct Federal control, for it proposes nothing but a partially trained force of volunteers. Does it not seem far wiser to extend Federal support to the militia upon condition that the training shall comply with Federal requirements?

Has not Scharnhorst shown us our true military policy, when by transferring every man to the reserve as soon as he had been trained, the active army of 42,000 men, to which he was restricted by the Peace of Paris, became the army of 150,000 that contributed so powerfully to the defeat of Napoleon? Why should we not adopt the policy of training our soldiers as intensively as possible and then transfer them, as soon as they are trained, to a reserve receiving proper pay from the Government and subject to be called to the colors whenever needed? Would not such a plan give us a vastly superior army to that available in any other way? Would it be any less a citizen soldiery because it had one year's continuous training instead of three months' training for each of four years? Would not the interference with business or professional activity be far less and the cost to the country far less than under the plans proposed?

If some mechanical training accompanied the military training, it might extend the period of active service, but might it not equip the soldier for a more useful citizenship and make enlistment more attractive? The same thought applies to the education of the reserve of trained officers that should be provided.

Universal military service would undoubtedly distribute the military burden, but it would create the burden for the sake of distributing it. It is not "shirking" to oppose the imposition on our people of a burden which it is both unnecessary and unwise for them to assume. By making service in the army and in the militia of real value to those who enlist, as well as to the nation, we should create a military system that would justify itself, and that would secure forces amply sufficient for our defense. There should be no illusion as to the effect—if not the purpose—of doing more than this. Our sons, once trained, would be available for war beyond our borders, and even statutory declarations against using them there would not remove the consequences of their availability.[1]

It may well be questioned whether the agitation for universal military training or any other form of conscription does not tend to discredit and to prevent a degree of actual military preparation which might otherwise receive popular support.

It is said that what we lack in the United States is discipline, and that military discipline will supply the need. We do want civic

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[1] On January 4, 1916, the Associated Press sent out from Washington a dispatch which it claimed exceptionally reliable information, stating that: "a navy equal strength to those of any two world powers except Great Britain, and an army prepared to fight for the integrity of the Pan-American idea anywhere in Pan-America is the mate aim of the plans of the military experts."

On January 6, 1916, Secretary Garrison said before the Military Committee of the House of Representatives: "We have determined and announced that the sovereignty of the other republics of this hemisphere shall remain inviolable and must therefore at all times stand ready to make good our position in this connection."

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under the Swiss system would almost certainly be perfunctory, because it would not be taken seriously. We must never forget that the discipline which Germany has given her citizens is a discipline which is not confined to their service in the army. The German people are trained to regard the state as the instrumentality through and by which they—each of them individually and all of them collectively—can best advance their interests—can best secure for themselves the necessities and the pleasures of life. Behind even the verboten is a larger consciousness of the advantages of communal action, a larger practical realization of those advantages, than obtains in any other great nation to-day.

Germany's industrial and social progress has been attained in spite of, and not because of, her system of enforced military training and service. Undoubtedly the conviction which has existed in Germany that war was a real and constantly impending probability has had an influence, perhaps a determining influence, in securing the adoption of certain policies, such as the government ownership and operation of railroads, and the development of waterways in connection with the railroads as a "coordinated" and interdependent transportation system. The same conviction of the imminence of war has perhaps had its influence in securing some of the social and industrial legislation which sound views of public policy justify and demand without the slightest regard to their military value. There is no evidence, however, that these social and industrial results in Germany were due to the military training of German citizens. Prussia is not the portion of the German Empire in which we find the most inspiring examples of peaceful progress. Again I find Paul Rohrback instructive when he points out the antagonism of "the material provincialism of the small state and the old individualism of the German races, which in this case has been hardened and quickened by the long political separation." He says:

> But we Germans of the Empire err if we think that this explanation settles the question. An equal share of the responsibility for the existing estrangement should be laid at the door of the North German element, which has gained hegemony in the new Empire, and which shows its inability to achieve in the world what one may call moral conquests. The shortsighted inflexibility of the North German, and most especially of the Prussian character, which can produce great things only among its own people, is easily explained by the course of its history. It deserves great, and perhaps even the sole, credit for the growth of Prussia to the state of a world power, and therefore, indirectly, for the union of the greater number of integral parts of the old Empire into the new Empire. Nevertheless, this special side of the Prussian character is developing more and more into an actual source of danger for our national future, especially in its modern unpleasant variations.

No; German social and industrial progress is not due to military training, but, as Paul Rohrback says, to Germany industry, and to the fact that Germany has made more progress toward having her government perform the true functions of government in its internal and peaceful relations to its citizens than has been made by other governments, especially our own. Unless our preparation is not only planned for defense, and is, as far as practicable, unadapted for aggression, the preparation itself will add to the possibilities of war, because we shall be less afraid of the consequences of mistake and less on our guard against those who from ignorance or self-interest seek to persuade us to maintain unsound national ideals or purposes.

Other nations may, of course, make the same sort of mistake; may permit themselves to assert against us interests that are not their true interests or that they have no right to assert. We may have to defend ourselves against aggression born of their mistakes, but so far as actual war is concerned we are in far less danger from the selfishness or muddled thinking of other nations than we are from the selfishness or muddled thinking of our own people. We are defended, not only by our geographical separation from Europe and Asia, but by the character of our country itself, its extent and physical conformation. and, more than all this, by the conflicting interests of our possible enemies. The balance of power in Europe has always been more of a defense to us than even our isolation. The conquest of the United States has been impossible—the attempt unthinkable—except by land and naval forces too large to be spared from Europe. It was largely because of this condition that we succeeded in the war of the Revolution, and got off with a little humiliation in 1812. Only the creation in Europe as a result of this war of new conditions in which one or other of the contending parties is left so completely crushed as to destroy all fear from that nation in the mind of the victor or victors can possibly threaten us, and then the victor must have some motive, must see some advantage, in making war upon us.

No European nation can have any real motive to attack the United States except to prevent us from asserting claims or exercising rights in other countries which are not in accordance with its interests. There can be no motive of conquest, and it is equally unthinkable that any European nation would make war on us to impose discriminatory commercial or political conditions upon us, or merely to punish us or to loot us or force from us a money payment as the price of peace. Theoretically, any of these things might happen; practically they can be dismissed from serious consideration.

If the United States becomes involved in war it will be because it asserts some right or claims some privilege outside of its own territory, the assertion of which right or privilege runs counter to the interests of some foreign power, or it will be because some foreign power asserts a similar right or privilege against us. We can not of ourselves control the motives or the actions of other powers except by international agreement, backed by force or by measures short of force which may be equally effective for the purpose. Our first concern, however, is with our own attitude toward these matters. What are the rights or privileges we claim or wish to claim outside of our own territory? Are we claiming or are we likely to claim any rights or privileges that are likely to be challenged by other nations? What are the foundations for such claims? Are they sound in principle and in law? How important to us is their assertion if challenged? Are they important enough to fight for? Are there other remedies than war available to us if they are challenged? What are they? Is our claim similar in character to that of other nations, and should we take steps to unite all nations who are interested in the same essential claims for its defense against a possible aggressor? Should we unite North and South America in the defense of our common interests, and if this seems desirable, why should we draw an artificial line excluding agreements with European nations in matters where our common interests are as clear as, or clearer than, our Pan American interests?

To reach right answers to these questions we must above all clear our minds of the false doctrine that enduring economic interests can be promoted by force. Undoubtedly temporary advantages can be secured by the exploitation of other nations, especially—perhaps exclusively—undeveloped peoples and undeveloped lands; but in the long run the commercial interests of the world are mutual. Our prosperity is dependent upon prosperity elsewhere. Every nation obtains materials or goods from others and sells to others its own surplus of materials or goods. Every nation has most to gain by helping to advance the trade of the world; to make all nations prosperous while fostering its own commerce by every means consistent with sound economic laws. So far as the happiness of the mass of mankind or of the masses of any particular nation is concerned the adjustment of world commerce to the natural laws of commerce wholly overbalances the temporary advantages of exploitation. Otherwise it would be to the economic interest of this nation to encourage the continuation of the war in Europe so that we might continue our artificial trade in munitions. We owe much to Norman Angell for his convincing presentation in effective popular form of the economic fallacy that world commerce follows national lines and that imperialism is commercially profitable.

The imperialistic theory is built upon the history of the British Empire and upon a misunderstanding of that history, especially upon a failure to comprehend that economic conditions are now so radically and irrevocably different that the British Empire itself is commercially and politically revolutionized. The history of England can not be repeated any more than can the history of Rome, and wise men would not desire to repeat either if they could. We can not ignore the process by which the world has been convinced that the welfare of the mass of the people is the real test of national success. Privilege may gain from exploitation, but not democracy; and democracy has come to stay as the economic, social, and intellectual ideal of civilization even more than as a political ideal. This will be clearer to mankind after this war, and we may suspect that it is becoming clearer and clearer during the war. Right now in the trenches no power can keep the soldier from thinking and thinking about the state and his relation to it. Even if he is led to magnify the value of organization and efficiency, he intends to ask for organization and efficiency in *his* interest and not in the interests of privilege or class.

The very first thing that we Americans should consider to-day is the relation which we wish our Government to assume toward us as individuals and toward other nations. Our whole attitude toward this war and its results depends upon our conception of the function of the state. What are our ideals of the individual life and of community life? Do we conceive that the most desirable life for ourselves—for individual men—is the life in which there is the least possible restraint upon individual freedom of action, not only the action of each man in those things that concern him alone—if, indeed, there are any such things—but also in those things that affect others, leaving the result of the conflict between individuals to be decided by the relative strength or cunning of the individual? There are those who, consciously or otherwise, really desire a world in which the strong, the astute, the intellectually and physically superior are to have the fullest freedom to enjoy every advantage which they can obtain over their inferiors. If they are shrewder, if more farseeing, if they are stronger, more vigorous physically and intellectually, they contend that it is their right to anticipate those who are less alert, less farseeing, less cunning, in seizing the things or the positions that are available, and that, having seized them, it is their vested right to hold them, even when it becomes clear that these things and these points of vantage are essential to the community as a whole and to the general mass of mankind. Men who hold this view regard it as a merit, as a demonstration of worth, that they foresaw what some day the community would need, some natural resource, some particular piece of property, the potential value of which was not generally appreciated at the time, and that they acquired it so that in the day of need they could profit from the needs of their fellows. We shall have to get rid of this idea in our individual and national life if we are to get rid of the most prolific source of war in the field of international relations.

Let us not confuse creative industry with mere shrewdness or foresight or superior mental or physical capacity. Superiority of this kind should have no reward for itself, but only for its exercise for the benefit of others, for the community as a whole. When it confines itself to forecasting the future and seizing now those things that are to be valuable hereafter it has no real claim to the gratitude or the respect of others. It has added nothing to the wealth or the welfare of mankind. It may be difficult to draw the line, but it is none the less certain that there is a line of distinction between creative and predatory wealth; and the duty of the community is to draw the line as rapidly as it can discern where it really lies and to approximate it even when its exact location is not entirely clear. It is the business of the community to protect community interests and to promote community welfare. If there is anything clear in our philosophy or our history it is that civilization is developing in this direction:

With thousand shocks that come and go,
With agonies, with energies,
With overthrowings, and with cries,
And undulations to and fro.

We know now that success in war depends, after the first shock, on social and industrial solidarity far more than upon the number of trained soldiers that can be placed in the field. It is easier to enlist men and to train them if the front can be held for a time—in our case if the first invading expedition can be held off or seriously crippled—than it is to organize the national economic and industrial forces to support the troops if they are to be successful under the conditions of modern warfare. In his annual message of December 7 President Wilson emphasized our duty in this regard:

> While we speak of the preparation of the Nation to make sure of her security and her effective power we must not fall into the patent error of supposing that her real strength comes from armaments and mere safeguards of written law. It comes, of course, from her people, their energy, their success in their undertakings, their free opportunity to use the natural resources of our great homeland and of the lands outside our continental borders which look to us for protection, for encouragement, and for assistance in their development, from the organization and freedom and vitality of our economic life.
>
> The domestic questions which engaged the attention of the last Congress are more vital to the Nation in this its time of test than at any other time. We can

> not adequately make ready for any trial of our strengh unless we wisely and promptly direct the force of our laws into these all-important fields of domestic action.

He then proceeds to select one pressing economic problem to which to direct particular attention. He says:

> In the meantime may I make this suggestion? The transportation problem is an exceedingly serious and pressing one in this country. There has from time to time of late been reason to fear that our railroads would not much longer be able to cope with it successfully as at present equipped and coordinated. I suggest that it would be wise to provide for a commission of inquiry to ascertain by a thorough canvass of the whole question whether our laws as at present framed and administered are as serviceable as they might be in the solution of the problem. It is obviously a problem that lies at the very foundation of our efficiency as a people. Such an inquiry ought to draw out every circumstance and opinion worth considering, and we need to know all sides of the matter if we mean to do anything in the field of Federal legislation.

The issue thus raised will be found to go far deeper than mere changes in "the process of regulation." No lesson of the war has been more clearly taught than that efficient transportation is of the very essence of military efficiency and strength. It is equally true, as President Wilson says, that the transportation problem in peace "lies at the very foundation of our efficiency as a people." Our present method of dealing with it is increasingly unsatisfactory to the private interests involved, and it is not satisfactory to the public. We have secured many improvements by adopting public regulation, but as this regulation proceeds it becomes more and more apparent that the transportation system of the country is essentially one interrelated and interdependent whole. There may always be a rivalry in economy and efficiency of service, but competition for traffic is moderated by a division of territory, or a gentlemen's agreement, while competition in rates has almost disappeared.

Governmental regulation has served to bring out clearly the essentially monopolistic character of our railroad system as a whole and the necessity of that "coordination" to which President Wilson refers. The question is whether coordination in the public service can be obtained so long as our railroads do not have a common financial interest as among themselves, but only a common financial interest as against the public. Can a public service which is essentially monopolistic be satisfactorily performed as a competitive enterprise? Are we not losing the benefits of competition without obtaining the advantages of regulated monopoly? We are certainly irritating and discouraging private enterprise based on competitive profits. So unsatisfactorily is the result that some of our leading railroad officials regard public ownership as the only escape from what they consider destructive regulation. The question is whether "coordination" can be obtained without public ownership.

Germany has owned and operated her railroads, from the point of view of public service, in peace and in war, not from the point of view of profits, although the profits have been large. The probabilities seem to be that after the close of this war every railroad in Europe will be nationalized. Military reasons may be the determining factors in this result, but it may well be questioned whether any satisfactory solution of the transportation problem can be reached in any other way. Whether our government should take over our railroads and when and upon what conditions may raise many questions of expediency, but if we are to treat the issue with open mind it is important that we should understand that if, in the public interest, the government should do so, it will not be invading the domain of private enterprise, but will merely be taking back to itself a function of government which, for what seemed sufficient reasons of expediency, it had previously delegated to private agencies.

I take it we shall all agree that if there is something which it is the true function of government to perform, that thing will never be performed as it should be until the government performs it. We may disagree about what is the true function of government, but once it is determined that on principle the performance of a particular service is a function of government, that means, if it means anything, that under right conditions of government it will be better performed by the government than if left to private enterprise. If a government is not performing all of the functions of government it is to that extent a failure as a government. The results must continue to be less satisfactory and less efficient than they should be and can be if the government is performing all of its functions, is qualified to perform them, and is performing them properly. Now, nothing is more clearly settled in the law of this country and in the principles upon which that law is based than that railroads as common carriers are performing a function of government. The Supreme Court of the United States and many other courts have so held. (See United States *v.* Joint Tariff Association, 171 U. S., 505, 570; Talcott *v.* Pine Grove, 23 Federal Cases, 652, etc.) Indeed, the construction and control of the public highway is historically and on principle one of the first of the functions of government, and a railroad is a public highway. My purpose in discussing this matter has been to indicate how deep the issues of industrial mobilization go. In England it already involves the relations of the trade unions to the government.

It is insisted by some that the abolition of war or even its substantial diminution is an idle dream; that we may be reasonably certain that for one reason or another this country will be involved in war within a comparatively short time. Very well. It is now clear that industrial mobilization is as essential to modern war as is military mobilization, and such mobilization can not be effectively made after hostilities occur unless the government already has the powers and is exercising the activities essential to effective mobilization. It is even more difficult to agree upon the principles and to create the machinery for industrial mobilization than for military mobilization, and lack of actual experience in applying the principles and operating the machinery may be disastrous in the one case as in the other. Do the prophets of war propose to face now the problems of economic and industrial mobilization? If they do it will be necessary to abandon some dogmatic assumptions which have heretofore formed and still form so large a part of our political thinking.

One of the most significant things in the development of all modern thought has been the decline in the acceptance of dogma. Outside of the exact sciences, like mathematics, we have learned to look with suspicion and distrust on dogmatic statement of laws or principles. William G. Sumner says: "If you want war, nourish a doctrine. Doctrines are the most frightful tyrants to which men ever are subject, because doctrines get inside of a man's own reason and betray him against himself." Consciously and unconsciously, the pragmatic philosophy is succeeding the dogmatic in science as it is in theology. Experiment is succeeding assumption as the sure foundation of human progress. In no field is this so important as in the field of political and social science—of nothing is it so true as of government. In the United States we have been particularly in danger of dogmatic error because of the wide acceptance of the proposition that that government is best which governs least, a dogmatic principle as vicious and unsound as the opposite dogma upon which socialism is based; for the dogma that the state should directly cover the whole field of human industry is equally fallacious. The truth, as usual, lies between. Government is not best when it governs least, nor is it best when it governs most. Government is best when it is doing well whatever will promote the welfare of the community most if done by the community than if left to be done by part of the community. And yet, progress is unquestionably in the direction of the extension of governmental activities into fields heretofore left to private enterprise, and we must be open minded toward further movement in that direction. Germany is strong today in war, not only because she is prepared for war, but because she has gone further than other nations in the assumption by her government of those social and industrial responsibilities which government should assume whenever it is apparent that, by so doing, the welfare of the nation—the greatest good to the greatest number—will be promoted. She has not accepted socialism, but she has been hampered by no dogma that the state must govern as little as possible. To the extent to which she has accepted and acted upon the principle that it is the true function of government to do whatever will promote the interest of the community better if undertaken by the community than if left to private enterprise, just to that extent has she strengthened herself and secured the grateful loyalty of her people. So we, too, must proceed, if we would prepare for the constructive uses of peace that grateful recognition of the value of the nation to its people, and that patriotic support of the people for the nation, which we are being exhorted to prepare for the destructive purposes of war.

In the long retrospect we shall find nothing clearer than that the evolution of government is steadily toward the assumption of new functions in the service of the people. Slowly but surely the movement has steadily gone forward in this direction, and always over the protests of those who have insisted that each advance was an unwarranted invasion of the field of private enterprise, of the rights and liberties of the individual.

Even the collection of taxes for the support of the state was once farmed out to those who found in it an opportunity for private profit. The practice found its justification in the claim that an army of tax collectors would be a public menace, and that the government could not possibly collect the taxes as economically and efficiently as private individuals. To-day it would be a rare individual indeed who would conceive that it is not the function of the state directly to collect the taxes necessary for its own support.

Time will not permit even the enumeration of other functions once supposed to be peculiarly private in their character, but which are now exercised by the government almost as a matter of course. It is almost axiomatic that the government shall conduct the Post Office, shall supply water, and shall extinguish fires. All of these things were once regarded as peculiarly sacred to private enterprise. I once represented a client who owned and operated as a private profit-making enterprise the sewer system of a thriving middle western town which was prevented by financial limitations in its charter from performing this primary municipal function. In reading Ferrero I was amused and instructed by his account of the sources of the wealth and political power of Crassus in 69 B. C. Ferrero says:

> Since the houses at Rome were mostly built of wood, and the Ædiles had so far failed to organize efficient measures of prevention, fires were at this time exceedingly frequent. This suggested to him a very ingenious idea. He organized a regular fire brigade from amongst his slaves, and established watch stations in every part of Rome. As soon as a fire broke out the watch ran to give notice to the brigade. The firemen turned out, but accompanied by a representative of Crassus, who bought up, practically for nothing. the house which was on fire, and sometimes all the neighboring houses which happened to be threatened as well. The bargain once concluded, he had the fire put out and the house rebuilt. In this way he secured possession of a large number of houses at a trifling cost, and became one of the largest landlords at Rome, both in houses and land, which he was then able, of course, to exchange, to sell, and to buy up again almost as he chose. Having become in this way one of the richest, if not the richest man in Rome, his power steadily increasing with every rise in the price of money, Crassus soon became a dominating figure in the Senate and the electorate, and indeed among all classes of the community.

Indeed, when later, an ædile who sprang from the common people extended the function of government in Rome to include the operation of a fire brigade, his activities were very much resented, and the privileged classes found it difficult to explain and impossible to justify his popularity with the people. I have no doubt that Rome rang with the same arguments about the invasion of the field of private enterprise with which the public ownership of railroads and other public utilities is received in this country to-day.

I am far from suggesting that in any given community, at any given time, it would be axiomatic, or even expedient, for the government to undertake all or any of these enterprises. I am merely asserting that it is by no means true that it should not do so solely because it would conflict with some dogmatic conception of the state. It is a question of wise expediency under existing conditions in every case, remembering always that the inexorable law of social evolution is moving steadily toward the assumption of community functions by the community.

The argument that the government has been too weak, too inefficient, or too corrupt to be trusted with functions which might be performed by a better government is only a confession of the indictment against our government and us. It is quite true that, in determining the ultimate interests of the community we must look for the long result. We must not destroy the incentives that are essential to progress. The whole fabric of existing civilization is based upon the institution of private property, upon the conception that in the existing stage of human development the best and most effective way in which to advance the well-being of mankind is by an appeal to the self-interest or the necessities of individuals; but even if we are entirely sure that necessity and financial gain are the most effective incentives to industry for the mass of mankind, are we not all coming to see that there is a point at which we overload the lure? Once we rise above the pinch of poverty and attain physical comfort and intellectual opportunity, are there not other incentives besides money that will stimulate and attract the very highest talent and the very greatest industry? Is not this demonstrated by the financial sacrifices made by so many of the very best men in our public service? You know what the desires, the hopes, the aspirations that animate you. What is it that you think would prove most satisfying and would call out the best there is in you? Is it not the conscious and effective use of your faculties for the accomplishment of things which you think are worth while? Is not the basis of real happiness obscured by false standards of success? There are dangers in democracy, just as there are dangers in privilege, but mankind has definitely discarded the old ideal of aristocracy. The purpose of civilization is not to produce an efflorescence, but to elevate the mass. The aristocracy of the future is to be an aristocracy of service, not of privilege; of achievement, not of acquisition.

The very first and most essential of all our preparation must be to make our government—local, state, and national—what it should be. This is the service for which we need universal training and a patriotism that is nobler and more useful than all the patriotism of war.

It is suggested that we already respond to the civic appeal more easily than to the appeal for military sacrifice, but Hiram Maxim says.

> I wonder why it is that we are not as enthusiastic in this social service work as we are in attacking the problem of war. Is it that there is more glory and more that appeals to the martial imagination in attacking war and warriors than there is in the prosaic, tame, and glamorless enterprise of simply saving human life in peaceful pursuits for the mere sake of saving it?

Senator Root has recently made an eloquent appeal for military preparation, in which he said:

> Do not let us deceive ourselves. Adequate preparation for the preservation of our liberty means a vast expenditure, but it means more than that; it means a willingness for self-sacrifice, a spirit among our people, the length and breadth of the land, among the rich and the poor, among the highly educated and the graduates of the common school, among professional men, merchants and bankers, farmers and laborers—a national spirit among the people of the land, and a determination to preserve the liberty and justice of the American Republic and to make a sacrifice of means and convenience, comfort, and, if need be, of life, in the cause.

To every word of this we should subscribe. But I wish the Senator had gone on to demonstrate—as he could do so well—that the patriotism and self-sacrifices of peace are of more transcendent importance, even as a preparation for war, than any present resolution of willingness to sacrifice "means and convenience, comfort, and, if need be, of life," upon the field of battle. I am not detracting in the least from the importance of making defensive military preparations; but a determination to preserve the liberty and justice of the American Republic, and to make some sacrifice of means and convenience and comfort in the piping times of peace will be our best preparation for war and our most likely insurance against it.

Do not let us deceive ourselves. The United States of America, as a nation, is worth preserving, is entitled to our loyalty and devotion, only to the extent that it is an agency to promote the moral, intellectual, and physical well-being of its people, not some of its people, but all of its people—only to the extent that, in very truth, in the realities of the everyday life of the men, the women, and the children who inhabit it, its conscious ideal is the greatest good to the greatest number. To carry out that ideal means a vast expenditure, willingly and intelligently made; it means a preparedness for self-sacrifice in times of peace quite as much as in times of war—nay, a greater self-sacrifice, because the progress of civilization is measured by the extent to which peace supersedes and supplants war. It means a spirit among our people the length and breadth of the land, among the rich and the poor, among the highly educated and the graduates of the common school and those to whom fortune unhappily has given no schooling at all, among professional men, merchants and bankers, farmers and laborers—a national spirit determined to make the American Republic an agency of liberty and justice at home and abroad.

In the service of this ideal, let us destroy every special privilege and be prepared to sacrifice means and convenience and comfort and, if need be, life itself to protect that government and the people it governs against every assault by force or cunning, whether from within or from without. Let us make social justice and social service our national ideal; and to this end let us control and develop our national resources in times of peace, not only that they may be mobilized in time of war, but because a government which is performing this sort of service to its people will be thus most effectively organized for peace. By all means, let us have an army and a navy adequate for the defense of such a nation, but let us realize that far more imporant than armies and navies are our national purposes and policies.

Are we really without the desire and the hope that the United States may acquire exceptional advantages in the commercial development of other countries—let us say, in this hemisphere or parts of it, in Cuba and the West Indies, in Mexico and Central America? Are we entirely free from the subconscious thought that here is our sphere of influence? How far is this thought at the bottom of the modern development of the Monroe Doctrine, especially as conceived by Secretary Olney when he declared that "the United States is practically sovereign on this continent"? Is it because of its hoped-for economic advantages to us that we insist upon a doctrine which seems no longer to have any political justification? Certainly we are no longer in apprehension that our republican form of government would seriously be jeopardized if any European nation should acquire political dominion over, or should plant its colonies in, South America. Those countries repudiate and resent our assumption of a benevolent protectorate over their national interests. They look with suspicion upon all our declarations of disinterestedness and point to our dealings with Mexico in the acquisition of Texas and California and to other incidents in our history as proof of the justice of their fears. Even the declaration of President Wilson, that this country will never again seek to acquire a foot of territory by force of arms, is regarded merely as the expression of a personal opinion, or as in the same class with the diplomatic assurance of pacific intention which has usually preceded the extension of the British or the French or the German or the Italian domains.

There is a clearer mutual understanding and a closer community of political and commercial interest between the principal countries of South America and the great nations of Europe than between those countries and ourselves. The ties of race and language and religion are closer. Few of our people understand how the eastward trend of the southern portion of this hemisphere brings South America into as close or closer proximity to Europe than to the United States, especially when available trade routes are taken into consideration. South American development has been financed in Europe, not in the United States, and to attempt to expand our commerce in that direction without assuming the large financial obligations that are essential to it is merely to work against the natural laws of trade.

Pan Americanism exalts physical geography, which is important; but commercial, intellectual, and racial geography is more important. Pan Americanism must be based on and be measured by real mutuality of interest and obligation. We should recognize and strengthen our mutual interests with Latin America, but we should not forget other equally or more important interests in Canada or Europe. The preservation of existing political geography to the south of us against change by violence should tend to increase stability where this is especially desirable; but why should we insist that the Americas are a separate international unit over which the United States is to maintain a benevolent protectorate at its own risk and without control over their domestic conditions or foreign policies?

To assert that the Monroe Doctrine is essential to our national safety has become an absurdity. Monarchical institutions no longer threaten our Republic. We have lived to see a republican form of government firmly established in France and to see constitutional monarchy develop steadily toward the essentials of representative democracy. We have lived for more than a century in immediate contact with a great self-governing colony of England, with the result that we have influenced its institutions far more than it has influenced ours. The whole purpose of President Monroe's famous declaration and the whole justification for making it have undergone a transformation so complete that nothing but the lack of intelligent discussion of the question can explain the extent to which it is regarded as something as holy as the Ark of the Covenant by so many of the American people.

It is safe to say that we believe in something called the Monroe Doctrine because we do not understand it and are making no attempt whatever to define it or to appraise its value to us. Let us not confuse it with that doctrine which is practically recognized by all the great nations of the world, viz, that wherever a nation is in fact so situated that the acquisition or control of immediately adjacent countries by great and powerful rivals would jeopardize its peace and security, that nation, in the exercise of its right of self-defense, can justly insist upon its rival refraining from such an extension of its domain. The point is well illustrated by the declaration of Paul Rohrbach with reference to the possible absorption of Holland by Germany. He says: "The resulting disturbance of the political equilibrium in Europe would be so distinctly in favor of Germany that all the other States would be justified in rising in protest against it." The right of a nation to protect its vital interests has been universally recognized, subject always to the possible exercise of superior force to override the objection. No nation has questioned the right of another nation to assert its vital interests, although it may have questioned its power to maintain them. The issue is an issue of fact. Does the particular thing which is threatened jeopardize the vital interests of the protesting nation?

The Monroe Doctrine has never been accepted by other nations as sound in principle, although the acquiescence of Great Britain has prevented it from being challenged; but if we were frankly to assert that the acquisition of Mexico by a European nation would be regarded as an unfriendly act because it threatened the vital interests of the United States it is exceedingly unlikely that there would be any attempt to deny that we were justified in interfering. Whether we should assert such an interest in the future of Mexico would depend upon the question of fact as to its influence upon our national security. Whether our interest would be admitted would depend upon the question of fact as to the effect of the proposed action upon the vital interests of this nation. It might depend upon our military ability to sustain our position; but what I am trying to make clear is that the validity of the Monroe Doctrine depends upon principles of universal international application and not upon principles peculiar to us or to the American continents.

In the interests of national security we should ourselves confine the Monroe Doctrine to these limits. In its present vague form it is a menace to our peace and to the peace of the world—all the more dangerous because we have not now, and we do not propose to have, military force sufficient to maintain it if it should be seriously questioned. Nothing is so dangerous to peace as the assertion of a right which is offensive to others, which they believe to be unjustified, and which we are not, and do not expect to be, prepared to defend. It is in support of the broader Monroe Doctrine and incidentally to get the support of the Pacific Coast that the Navy League is insisting that we should have a navy on the Pacific stronger than Japan's and another navy on the Atlantic stronger than the navy of any other nation except England—a policy which, fortunately, there seems to be no probability whatever of the United States being persuaded to adopt. And yet, if we do not have such a navy, I must agree with Homer Lea when he says that "the Monroe Doctrine, if not supported by naval and mility power sufficient to enforce its observance by all nations singly and in coalition, becomes a factor more provocative of war than any other national policy ever attempted in modern or ancient times."

Our greatest duty, therefore, is not to build fleets to maintain the Monroe Doctrine, but it is to consider whether the Monroe Doctrine, in any other sense than the protection of our vital national interests, is worth the risk of war and the cost of preparing for it. It it can not be justified upon the ground of defense, can it be justified upon the ground of self-interest? The Monroe Doctrine may have helped drive Maximilian out of Mexico. It may have served us in some indeterminate directions during the first half of our national existence, but if it has profited us in any other way the evidence does not seem to be available. Certainly we can show no financial profit and no prospect in this direction.

It may not be clear that our trade in Latin America would have been substantially greater if it had been colonized by European nations and developed under their flags, but it certainly is not clear that this would not have been the case. Our total trade with South America for the year ending June 30, 1913 (unaffected by war), was a little over $360,000,000. Our trade with Canada the same year was over $535,000,000. Approximately $162,000,000 of our South American trade was with Brazil alone, the greater portion being imports of coffee, which we may safely assume would have sought a market in this country no matter under what flag the coffee had been raised. It seems equally true that our sales of agricultural implements to South America would doubtless have been as great if the flag of England or Germany or France or Italy or Spain had been flying in the southern portion of the hemisphere.

I am not regretting the political independence of the South American republics. On the contrary, I share in the feeling of pride in their achievements, which is perhaps not justified by our contribution to that result. I am merely pointing out that the further assertion of the Monroe Doctrine would seem to have no justification in the commercial results obtained by it; and the extension of our trade in the future will depend upon considerations with which the Monroe Doctrine has nothing whatever to do. But even if it were true that its abandonment would result in some diminution of our commerce, which I do not believe, the loss would be utterly insignificant in comparison with the expenditure we shall have to make if the Monroe Doctrine is to be anything but a source of weakness and of danger.

There is a widespread popular impression that Germany has ulterior designs on South America, and that, if successful in the present war, she will restrict the trade of other nations and discriminate against this country. I find no justification for this opinion. I have no doubt that Germany resents and disagrees with the doctrine of Monroe. I have no doubt that, whether successful or unsuccessful in the war, she will seek to push her trade and commerce in South America. But all of the indications are that Germany has been looking to the Near and Middle East as the field peculiarly adapted for her political and commercial expansion. It is the Bagdad Railroad and the ancient Babylonian empire upon which she seems to have fixed her desires, and with respect to which she so bitterly resents the restrictions for which she holds England responsible. There is much misunderstanding about German colonization in South America. It is estimated that the total German immigration now in Argentina, for instance, is only 30,000, while there are 950,000 Italians and 150,000 French.[1] I have been unable to obtain the total figures for Brazil, but in 1910 the immigration was 30,857 Portuguese, 20,843 Spanish, 14,163 Italians, 3,902 Germans, etc.

I shall refer to only one other matter of this character, and that is our relations with Japan; and I select them because we are supposed by many to be in greater danger of a collision with Japan than with any other nation, unless it be Germany. It is said that Japan is likely to attack us, because we offer an enticing opportunity for loot, because

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[1] The official immigration figures in Argentina for the period from 1857 to 1908 are as follows:
Italian, 1,799,423; Spanish, 795,243; French, 188,316; English, 42,765; Austro-Hungarian, 59,800; German, 40,655; Swiss, 28,344; Belgian, 20,668; other, 203,242. The emigration was a little less than half the immigration.

Japan wishes to acquire the Philippines, and because she wishes to force us to accept her people as immigrants and to treat them on a parity with the immigrants from other countries.

I think we may dismiss, as unworthy of our own intelligence, the suggestion that Japan would make a wanton attack upon this country merely in the hope of exacting an indemnity or of pilaging our Pacific coast. Japan has done nothing that would justify the assumption that she would be influenced by such a motive, even if she could be persuaded that she would succeed. No nation in the history of the world has so clearly earned the right to have its motives, its intelligence, and its achievements treated with respect than has Japan. Her ambition is clearly to secure the respect of the civilized world and to deserve it. In my judgment she will be more punctilious in respect to international morals than many nations that boast a broader civilization. But if nothing else would restrain her she is too intelligent not to know that all she could secure in the way of pecuniary advantage would have to be returned manyfold in the competition of armaments that would inevitably ensue, until this country had made her atone for every wrong that she had done to us. The day of the international marauder on any such scale as this is over.

The Open Door in China is one of the issues which are thought to be provocative of trouble with Japan. Hiram Maxim says a Japanese diplomat asked him by what logic we can proclaim America for the Americans and disclaim Japan's right equally to proclaim Asia for the Asiatics. What *is* the answer? Baron Shibusawa recently said in my hearing that Japan was especially desirous of cordial relations with the United States for three reasons: First, because Japan recognized many obligations of gratitude to the United States for our conspicuous part in the acceptance and development of modern conditions and institutions by Japan; secondly, because one-fourth of Japan's foreign commerce was with the United States, and Japan was anxious to retain and increase it; thirdly, because the greatest world problem was the adjustment and mutual understanding of oriental and occidental civilization, and that Japan believed the two nations best adapted to bring this about were Japan and the United States working sympathetically together for this purpose. Such speeches may be only international compliments, but they deserve thoughtful consideration.

As to the Philippines, there is no evidence that Japan desires them at this time, when her hands are full to overflowing with opportunities in Korea and China. And what is our policy in the Philippines? Do we really intend to establish there an independent nation? Do we propose to retain control over its international policies after we have given it independence? If we do not control, do we none the less propose to protect the Philippine nation against the consequences of its own policies or to guarantee its sovereignty or territorial integrity? If we seek to retain no special advantages over other nations in the commercial development of the Philippine Islands and are animated by sincerely benevolent motives, should we not seek to secure international guaranties that would be far more effective than anything that we alone can do to assure independence of the nation for whose existence we are to be responsible? Is it at all clear that Japan would not gladly join in such an arrangement?

The remaining source of future trouble with Japan is the policy which we adopt toward her with respect to immigration and the rights of her people while residing in this country. There can be no question that Japan resents the manner in which her people are being treated on the Pacific coast. Whether California is justified or not in the substance of what she seeks by restricting the rights of the Japanese to acquire and hold land is entirely outside the point. The citizens of the United States are under restriction with respect to land ownership in Japan, and this subject is susceptible of diplomatic adjustment on a basis that will recognize the mutual self-respect of both countries. Japan has given evidence of the most substantial character of her desire to meet and treat this issue in a broad-minded and practical way. She asks merely that it shall be so treated. If we treat her thus, and have California treat her thus, we shall do more to reduce the probability of friction with Japan than all the naval and military preparations we shall make against her.

It is said, however, that we must enormously increase our Navy if we are to protect our interests in the Panama Canal. Before the Canal was constructed the argument ran quite the other way. The construction of the Canal was so to facilitate the passage of our fleet from the Atlantic to the Pacific, or the reverse, that it would double the efficiency of the fleet, and constitute an asset of incalculable value in the event of war. Now, hovever, it has become merely an extension of our coast line, a vulnerable point which it is essential to take extraordinary precautions to protect. If this is true, we have gained only a military liability by the construction of the Canal, having admitted the merchant vessels of all nations to the Canal on a parity with our own. Proximity to the Canal is our only advantage over other nations so far as our foreign commerce is concerned. If it is to take a huge navy to protect it so that it may be used for the passage of our fleets in time of war, there would seem to have been little net gain from a military point of view. Should we not be far better off if, having made this splendid contribution to the commerce of the world, we should now completely neutralize the Canal, under international guaranties, in which we should invite all civilized nations to join? The basis of the agreement might be either the closing of the Canal to the warships of belligerent nations, or the opening of the Canal to all belligerents alike, upon the condition that no encounter should be permitted to take place within a specified distance from either entrance. The practicability of this plan would necessarily depend upon the extent to which the Canal could be secured from injury or a surprise attack from some belligerent who did not respect its obligations. Either plan would probably result in greater protection of our interests in the Canal than any security derived from the size of the fleet available for its defense in the event of war between the United States and any first-class naval power.

But the necessity of naval protection for the Canal must be considered in the light of Gen. Goethals's testimony before the subcommittee of the Committee on Appropriations of the House of Representatives. Gen. Goethals testified that on the assumption that the naval contest had been ended, and that the control of the sea rested with the enemy, so that the enemy's transports were free and able to land troops, a force of 25,000 men with proper land defenses would be able to hold off an invading expedition against the Panama Canal at least as long as the time that was necessary for the capture of Port Arthur. If this be true, it would seem clear that the defense of the Panama Canal would necessitate no departure from the defensive naval policy in which the submarine would largely replace the dreadnaught and the battle cruiser. The Canal is perculiarly adapted for defense by submarines, and there is a difference of expert opinion as to whether its land defenses should not be confined to defense against raids.

It will naturally be said that even if we abandon the policy of extending our commercial interests by force or by the show of force other nations will not do so, and unless we are prepared to assert our rights in foreign lands our financial interests will suffer, our pride be humbled, and our people be humiliated and abused. There are cases in which we must be prepared to send warships into foreign seas to enforce respect for the flag of the United States and for those who are entitled to its protection. The policies I am suggesting would never leave this country without a Navy containing sufficient warships to compel the respect of or to punish those inferior nations from which we need have any apprehension of wanton insult or ill treatment of our nationals. No civilized nation of consequence would in time of peace refuse atonement for insult or injury to any of our people. We may conclusively assume that every reparation would be made, and every precaution would be taken against the repetition of such an incident. Nothing but the willingness of the offending nation to proceed to war would call for a larger Navy than we should have; and our naval policies in the event of war would depend upon, and be determined by, the larger considerations to which I have referred. Assuming that we were protected at home against invasion, we might effectively resort to other weapons than the use of force. There are some conceptions of national honor and of what is essential for its vindication that are reminiscent of the *code duello;* but they can not long survive that discredited institution.

To the contention that we must have a navy adequate to protect our foreign trade and keep open the highways of commerce, it seems sufficient to reply that unless we develop a real merchant marine our foreign commerce would be carried on neutral ships; that no blockade of our extensive coasts could be made effective; and that nothing but the dominion of the seas could give us an assurance of uninterrupted foreign trade if private commerce is not to be safe under the sanctions of international law. General Greene has aptly said:

> We do not need and will not have in this country an army of seven hundred thousand men, as some ill-balanced enthusiasts demand; we are not compelled to and we will not enter the battleship race of England and Germany. England must run this race or die. We are not so situated, and it would be supreme folly for us to waste our resources or our thoughts on any such contest.

But a defensive military policy does not assume a policy of international isolation. If there is anything which this war and the issues arising out of this war have made clear, it is that no nation can longer live unto itself, and least of all that a great commercial nation like the United States can refrain from active and direct participation in the determination of those policies and the creation of those agencies by which law is to be substituted for war and the peaceful development of the world is to be assured. The peaceful development of the United States is indissolubly linked with the peaceful development of Europe and the world. We can no longer refrain from alliances because they may involve us in issues from which, thus far, we have happily been free. We must take our place in the family of nations and assume our full measure of responsibility. Nor need we despair of making substantial progress toward the substitution of peaceful means for the settlement of international differences by force of arms.

The declaration of President Wilson with regard to Pan Americanism in his annual message should serve the useful purpose of directing public attention to the inapplicability of the old conceptions of the Monroe doctrine to existing conditions. If this nation is really definitely to abandon the rôle "which it was always difficult to maintain without offense to the pride of the peoples whose freedom of action we sought to protect, and without provoking serious misconceptions of our motives," and is to interpret the Monroe Doctrine as an invitation to "a full and honorable association, as of partners, between ourselves and our neighbors, in the interest of all America. north and south," it marks a tremendous forward step in the national policies of the United States. It must not be forgotten, however, that the invitation has not yet been accepted, and, above all, that it has not yet been embodied in any international undertakings that can be regarded as a substitute for the doctrine of Monroe.

The President's message is admirable so far as it goes, but it leaves unanswered the question as to what this country would propose to do in any of the contingencies to which I have referred. Are we to have a defensive alliance with the Latin-American nations, and if so, upon what mutual terms and conditions? Can we, and shall we, make a real start toward "the parliament of man, the federation of the world," by a Pan American alliance in the interests of peace? Undoubtedly there never was an opportunity so favorable as this; and why should we not press home our opportunity by inaugurating that League to Enforce Peace, which is the most practical of all the suggestions that have thus far been made for the substitution of law for war by international agreement?

I trust that the Chamber of Commerce of the United States will seize the opportunity which is peculiarly within its grasp. Never, it seems to me, was anything more timely than the referendum which is now being taken by that great national association of the business interests of America. I think it is safe to assume that few, indeed, in this audience are aware of an event which is almost epochal in its importance.

On the 2d day of September, 1915, a Special Committee of the Chamber of Commerce of the United States of America, composed of men of large business experience, representing commercial institutions of the highest and most conservative standing, unanimously recommended that Congress and the President be called upon to do all in their power to promote the establishment of:

1. A more comprehensive and better-defined sea law.
2. An International Court.
3. A Council of Conciliation.
4. International Conferences for the better establishment and progressive amendment of International Law.

> **5. The organization of a System of Commercial and Financial Non-Intercourse, to be followed by military force, if necessary, to be applied to those nations entering into the foregoing arrangements and then going to war without first submitting their differences to an agreed-upon tribunal.**[1]

The first four of these recommendations are regarded as based upon considerations so convincing that the committee appointed to formulate arguments against the recommendations involved, so that all phases of the question should be presented on the taking of the referendum, said:

> It is assumed that the first four proposals of the committee are directed to conditions so well understood that the agreement about the answers to them is so nearly universal as to render unnecessary any attempt to formulate objections to them.

As to the fifth proposal, the committee which is in charge of the referendum vote states that it involves the adoption of a new principle "which, however moderate in its immediate form, may be regarded as a departure from accepted rules of conduct in international law"; and it sets forth a number of objections, which it says "may be deserving of attention."

All of these objections, however, were met in advance in the unanimous report of the special committee. Having already pointed out that "the problem of securing peace and justice among nations is simply an extension of what we have successfully solved in the national and municipal realms," and that international conferences have already secured results of the greatest importance for the peace and progress of the world, the committee expresses the opinion that—

> This movement toward international agreement and law was gaining in strength each year. Stopped by the war, there is little doubt that it will revive stronger, and pursue its course in a more regular and systematic way when the war is over. Business men perhaps more than others should be anxious to support such endeavors for a better understanding among nations, establishing more firmly enlightened standards to govern their interrelations and furnishing a more elaborate and organic body of international public and administrative law. The present war has again incontrovertibly shown the fundamental need for this. The problem is, then, not new or novel, but needs only to be broadened and organized to yield all the desired benefits. * * * There is a difference of opinion as to the employment of force to compel any signatory nation to submit its cause to an international tribunal before going to war. Your Committee, however, believes that the great majority of the practical men of the United States who hold themselves responsible for reasonable progress see the necessity of the employment of an adequate pressure or force to compel signatory nations to bring their cause before an International Court or Council of Conciliation before going to war; because however desirable it may be, theoretically, not to use force, yet the history of the last 100 years, the many wars during that time, and the events of the present war have made apparent the fundamental need of an international power to enforce the submission of international disputes to a court. The alternative is constantly recurring wars, and, in the interval between these wars, the increasing absorption in preparation for war of the resources of the principal nations of the world.

The committee demonstrates the wisdom and the practicability of the use of economic pressure as a preliminary to the use of force, and point out that, while such pressure involves economic loss to the nations that apply it, "war, too, is costly and self-injurious to the nations which essay it."

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[1] The preliminary count of the votes of the constituent members of the national chamber on this referendum, announced on January 5, 1916, showed the following results: Proposition 1: 763 in favor, 29 opposed; proposition 2: 753 in favor, 21 opposced; proposition 3: 744 in favor, 28 opposed; proposition 4: 769 in favor, 13 opposed; proposition 5(*a*): 556 in favor, 157 opposed (economic pressure); proposition 5(*b*): 452 in favor, 249 opposed (military force).

Your Committee has studied sympathetically the arguments of those who, on principle, oppose all force, even to enforce law instead of war; likewise, the argument of those who respect the tradition that the United States should "keep free of entangling alliances." It must be conceded that the latter described a past policy under which our nation has grown in prosperity and happiness. But your Committee is forced to see that our country is already directly involved in the present war, because the lives and prosperity of American citizens have been involved, and because the future peace and prosperity of our country will be involved in the settlement of the war.

Your Committee believes that American citizens, realizing the world's imperative need of the substitution of law for war, if militarism is not to dominate, are ready, nay, feel it the clear call of duty, to take their share of the work and responsibility necessary to establish this substitution. We can not escape if we would, we would not if we could; the call of women and children, of the helpless and the weak, suffering indescribably from needless war, is an irresistible compulsion to all Americans, and, not least, to American business men. * * *

Knowing that civilization is made up of the work and suffering and martyrdoms of the past, we are willing, yes, anxious, to "pay back," in kind if necessary, what we are enjoying, if thereby we can help on this greatest forward step of civilization—the substitution of law for war. Your Committee believes that the time is ripe, as never before, for the fundamental advance in civilization that the establishing of an International Court and Council represents. * * * Your Committee believes that it is practically possible that the time has arrived, if the United States will but do its share of the work. There is little real hope for success if the United States is not a part of it. * * * If, at the close of the war there exists the legalized purpose of the United States to join in the work needed too enforce peace, there will be a most practical reason to expect success for this so necessary step forward. In fact, the beginning of the necessary organization may be in existence at that time, by reason of the agreement between the United States and some of the neutral nations of South America and Europe. It is a great opportunity, perhaps the greatest that has ever come to any nation. It is a great adventure practically within our power to promote—an enterprise that appeals to all that is best in us—an opportunity we will not miss.

Remember these are not the words and this is not the action of a body of visionary enthusiasts; it is the unanimous recommendation of a special committee of the greatest commercial body in this country, appointed "to examine into the relations between the present war and business, and submit suggestions as to the future." Nor is it the only indication of the progress of higher ideals in international relations.

There is a dispatch which was sent by Sir Edward Grey to Sir Edward Goshen, British Ambassador at Berlin, at the very crisis of the diplomatic interchanges which preceded the war, which I have read and reread with mingled feelings of sadness and hope. It has always seemed to me the most tragic of all the official documents which have been published by the warring nations, and, at the same time, the most encouraging. Just as it seemed inevitable that the explosion would occur, that the catastrophe must happen, after the suggestions and countersuggestions, the complaints and countercomplaints had been discussed under the forms and usages of diplomacy, Sir Edward Grey struck a new note that went straight to the heart of the underlying cause of all the difficulty. On July 30, 1914, he authorized Sir Edward Goshen to say to the German Chancellor:

If the peace of Europe can be preserved and the present crisis safely passed, my own endeavor will be to promote some arrangement, to which Germany could be a party, by which she could be assured that no aggressive or hostile policy

> would be pursued against her or her allies, by France, Russia, and ourselves, jointly or separately. I have desired this and worked for it, as far as I could, through the last Balkan crisis, and Germany having a corresponding object, our relations sensibly improved. The idea has hitherto been too Utopian to form the subject of definite proposals; but if this present crisis, so much more acute than any that Europe has gone through for generations, be safely passed, I am hopeful that the relief and reaction which will follow may make possible some more definite *rapprochement* between the powers than has been possible hitherto.

Sir Edward Grey did not indicate exactly what he had in mind, but with the fate of Europe trembling in the balance, Utopia seemed nearer and more practically available than had seemed possible before. It was to be "some more definite *rapprochement* between the powers than has been possible hitherto"—some arrangement to which Germany could be a party, by which she could be assured that no aggressive or hostile policy would be pursued against her or her allies "by France, Russia, and ourselves, jointly or separately." Oh, the pity that Utopia had not seemed nearer a little while before; that this dispatch should have waited for "this present crisis, so much more acute than any that Europe has gone through for generations." What a tragedy that it should have been received by a chancellor who heard it without comment "because His Excellency was so taken up with the news of the Russian measures along the frontier."

That dispatch has not yet been answered. The German Chancellor asked for and received a copy as a memorandum, as "he would like to reflect on it before giving an answer." He has had much time and much occasion to reflect. That dispatch will be unanswered at the close of the war. The future of mankind depends upon the spirit in which its discussion is resumed, and upon the conditions which then exist. After this present conflict, so much more destructive and appalling than any that Europe has gone through, why should not the United States hold open a road that will at least lead toward Utopia by adopting the suggestions on which the members of the national Chamber of Commerce are now voting—by having in existence the beginning of a League to Enforce Peace by agreements then already made between the United States and some of the neutral nations of South America *and* Europe? *Si vis pacem para pacem.* If we wish *peace* let us *prepare* for *peace.*

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64TH CONGRESS, *1st Session* — SENATE — DOCUMENT No. 324

AFFAIRS IN MEXICO

MESSAGE

FROM THE

PRESIDENT OF THE UNITED STATES

TRANSMITTING

IN RESPONSE TO A SENATE RESOLUTION OF
JANUARY 6, 1916, CERTAIN INFORMATION
RELATIVE TO AFFAIRS IN MEXICO

FEBRUARY 17, 1916.—Read; ordered to lie on the table
and to be printed

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

SUBMITTED BY MR. FALL.

IN THE SENATE OF THE UNITED STATES,
January 6, 1916.

Resolved, That the President be requested, if not incompatible with the public interests, to inform the Senate upon the following subjects and to transmit to the Senate the documents, letters, reports, orders, and so forth, hereinafter referred to:

First. Is there a government now existing in the Republic of Mexico; and if so,

Second. Is such government recognized by this Government; how is such government maintained, and where; who is now the recognized head of such government, and is the same a constitutional government?

Third. By what means was the recognition of any government in Mexico brought about, and what proceedings, if any, were followed prior to and resulting in recognition, in any conference between this country and Argentina, Brazil, Chile, Guatemala, and any other country or countries?

Fourth. What assurances has the Government of Mexico given this Government as to its course in protecting American lives and property in Mexico and in Texas, New Mexico, Arizona, and California; and, if such assurances have been given, what evidence has this Government of the ability of such Government to fulfill its promises and obligations in the premises?

Fifth. What orders or instructions have been issued to our officials and armed forces on or near the Mexican border for the protection of the lives, property, and peace of American citizens along said border?

Sixth. What assurances have been received from the Mexican Government, or requested by this Government, as to payment of American damage claims for injury to life or property of our citizens resulting from the acts of Mexico or citizens of that country within the past five years?

Seventh. What assurances have been given by the Mexican Government as to the protection of foreigners and citizens, and particularly in the free exercise of their religion, in public or in private?

Eighth. Reports of the Brazilian minister to Mexico made to this Government by letter or otherwise while said minister was representing this Government in Mexico; also reports of American consuls and consular representatives in Mexico during the past four years, together with reports from any special or other sources of information available or in hand concerning or relating to Mexican affairs and conditions, or to Mexican officials or military and factional leaders; reports of the actions of the Red Cross in Mexico, and their reports to this Government.

Ninth. Data, letters, and reports relating to the closing of the port of El Paso and reopening same to importations of meat from Juarez, and also to the setting aside or revocation of any decrees or orders of Villa concerning mining property.

Tenth. Information concerning the occupation of Vera Cruz by our land and naval forces; duration of such occupation; our administration of affairs during such occupancy; and the date and cause of the evacuation of Vera Cruz, with all correspondence concerning such evacuation.

Attest:

JAMES M. BAKER, *Secretary.*

MESSAGE OF TRANSMITTAL.

To the Senate:

In response to the resolution adopted by the Senate on January 6, 1916, requesting the President to inform the Senate, if not incompatible with the public interests, upon certain subjects respecting the situation in Mexico, and to transmit to the Senate the documents, letters, reports, orders, and so forth, therein referred to, I transmit herewith a report by the Secretary of State, with accompanying papers.

The report of the Secretary of State has my approval.

WOODROW WILSON.

The WHITE HOUSE,
Washington, February 17, 1916.

LIST OF PAPERS.

1. The Secretary of State to Mr. Arredondo, October 19, 1915.
2. Statement by the President with regard to Mexico, June 2, 1915.
3. Appeal to all generals, governors, and other leaders in Mexico, signed by the Secretary of State, the ambassadors of Brazil, Chile, and Argentina and the ministers of Bolivia, Uruguay, and Guatemala, August 11, 1915.
4. From Mr. Arredondo to the Secretary of State, October 7, 1915.
4A. From Gen. Carranza to Mr. Arredondo, October 5, 1915 (telegram).
4B. Résumé of the Mexican Constitutionalist Revolution and its progress, by Mr. Arredondo, dated October 7, 1915.
4C. Plan of Guadalupe, March 26, 1913.
4D. Decree of Gen. Carranza, December 12, 1914.
4E. Declaration to the Nation by Gen. Carranza, June 11, 1915.
4F. From Gen. Carranza to Mr. Arredondo, October 6, 1915 (telegram).
5. From the Secretary of War to the Secretary of State, February 10, 1916.
5A. Weekly report of general conditions along the Mexican border, based on weekly reports of January 1, 1916.
5B. Weekly report of general conditions along the Mexican border, based on weekly reports of January 15, 1916.
6. From the Secretary of War to the Secretary of State, January 26, 1916 (extract).
7. From Mr. Arredondo to the Secretary of State, October 8, 1915.
8. From consul at Chihuahua to the Secretary of State, No. 658, July 31, 1915.
8A. From the Acting Secretary of State to the consul at Chihuahua, No. 379, August 11, 1915.
8B. From Mine and Smelter Operators' Association to the Secretary of State, received August 6, 1915 (telegram).
8C. From George C. Carothers to the Secretary of State, received August 12, 1915 (telegram).
9. From Rear Admiral Fletcher to the Secretary of the Navy, April 9, 1914 (telegram).
9A. From the Secretary of the Navy to the Secretary of State, January 19, 1916.
9B. From the Secretary of War to the Secretary of State, January 26, 1916.
10. From the Secretary of State to the Brazilian Minister in Mexico, September 22, 1914 (telegram).
11. From the Brazilian Minister in Mexico to the Secretary of State, November 10, 1914 (telegram).
12. List of Americans killed in Mexico during 1913–1915.
12A. List of Americans killed in Mexico in 1910, 1911, and 1912.
12B. List of Americans reported killed in American territory as a result of the Mexican border troubles during the years 1913–1915.
12C. List of American soldiers killed in American territory on account of Mexican border troubles.
12D. Mexicans reported killed in American territory as a result of border troubles other than those resulting from firing across the international line, during engagements in Mexican border towns, between the years 1913 and 1915, inclusive.

LETTER OF THE SECRETARY OF STATE TO THE PRESIDENT.

To the PRESIDENT:

The resolution adopted by the United States Senate on January 6, 1916, requesting to be furnished, if not incompatible with the public interest, with documents, letters, reports, orders, etc., relating to the Mexican situation, having been referred by you to the Department of State for report, I have the honor to state, after earnest consideration of the request in the light of such study as the department has given this subject for a period of several years, that I believe it to be incompatible with the public interest to transmit to the Senate, at the present time, the voluminous correspondence called for by the resolution between the Department of State and the representatives of the United States in Mexico, or that between this department and representatives of the de facto Government of Mexico, of which Gen. Venustiano Carranza is the Chief Executive.

In response, however, to the inquiries made in the resolution, I have had prepared the following concise statement, together with copies of certain pertinent documents which are hereto appended:

(1) The government at present existing in Mexico is a de facto government, established by military power, which has definitely committed itself to the holding of popular elections upon the restoration of domestic peace.

(2) This de facto Government of Mexico, of which Gen. Venustiano Carranza is the Chief Executive, was recognized by the Government of the United States on October 19, 1915, and a copy of the letter to Mr. Eliseo Arredondo, the representative of the de facto government at this capital, informing him of such recognition is hereto appended (inclosure No. 1). The said de facto government has since been recognized by substantially all the countries of Latin America; also by Great Britain, France, Italy, Russia, Japan, Austria-Hungary, Germany, and Spain; and several other countries have recently announced their intention of extending recognition. The said de facto government is at present being maintained at Queretaro, near Mexico City.

It can not be said that the de facto Government of Mexico is a constitutional government. The de facto government, like the majority of revolutionary governments, is of a military character, but, as already stated, that government has committed itself to the holding of elections, and it is confidently expected that the present government will, within a reasonable time, be merged in or succeeded by a government organized under the constitution and laws of Mexico.

(3) After July, 1914, the revolutionary party became divided into factions, thereby delaying the pacification of the country. Meanwhile, this Government took no action, hoping that these factions would, by reunion, be able to restore order. As this desirable result had not been achieved up to June 2, 1915, the President's statement

of that date, containing a warning to the leaders of the factions, was telegraphed to the American consular officers in Mexico, for circulation. A copy of this statement is appended hereto (inclosure No. 2).

Several weeks after the statement was issued, as the factional differences seemed to be no nearer to a settlement, this Government sounded the six ranking diplomatic representatives of Latin-America as to whether they would confer and advise with this Government in regard to formulating some practicable plan, if possible, for the solution of the Mexican problem. Under instructions from their respective governments, these representatives signified their desire to cooperate with this Government, and the first conference with the representatives was held on August 5, last.

As a result of that conference the ambassadors of Argentina, Brazil, and Chile, the ministers of Bolivia, Uruguay, and Guatemala, and the Secretary of State of the United States, acting severally, signed an appeal to the civil and military leaders of the revolutionary factions in Mexico, suggesting that the latter hold a conference to discuss a peaceful settlement of their differences and offered to act as intermediaries to arrange the time, place, and other details of such conference. Identical communications in this sense were, under date of August 13 and 14 last, sent by telegraph to all generals, governors, and other leaders known to be exercising civil or military authority in Mexico. A copy of this communication is appended (inclosure No. 3).

The attempt to bring the factions together for a conference failed. Substantially all the commanders and others in authority who were associated with Gen. Villa, replied directly and independently, in varied language, accepting the suggestion for a conference. On the other hand, all the commanders and others in authority who were affiliated with Gen. Carranza replied briefly to the effect that the appeal had been referred to Gen. Carranza, whose superior authority they acknowledged, and who would make such reply as he deemed proper. The inference to be drawn was plain. On the one hand, there seemed to be no central organization among the Villista forces, while, on the other hand, submission to a central authority was evidenced in the replies of the Carranzistas. The unity and loyalty of the Carranzistas appeared to indicate the ultimate triumph of that faction, especially as the Carranzista forces were then in control of approximately 75 per cent of the territory of Mexico. Accordingly the conferees, after careful and impartial consideration of all the circumstances, decided unanimously to recommend severally to their respective governments that in their opinion the government of which Gen. Carranza was the leader should be recognized as the de facto government of Mexico.

(4) There is appended hereto a copy of a letter from Mr. Eliseo Arredondo, the local representative of Gen. Carranza in Washington, dated October 7, 1915 (inclosure No. 4), transmitting several documents (inclosures 4A, 4B, 4C, 4D, 4E, and 4F), setting forth the program of the de facto government with respect to the protection of the lives and property of foreigners in Mexico, the settlement of claims arising from the disturbed conditions, and other matters appertaining to the restoration of order.

As to the ability of the de facto government to fulfill its promises to protect lives and properties along the border, the undersigned has the honor to call your attention to the fact that since assurances in this respect were given to this Government by the de facto government, the disturbances along the border have in a large measure ceased. In this connection a copy of a letter from the Secretary of War, dated February 10, 1916 (inclosure No. 5), and copies of weekly reports Nos. 146 and 148 for the weeks ending January 1 and January 15, 1916, prepared by the War Department, concerning general conditions along the Mexican border (inclosures Nos. 5A and 5B), are hereto appended. It will be seen from these reports that conditions along the border are practically normal.

In respect to the evidence in the possession of this Government of the ability of the de facto government of Mexico to fulfill its promises and obligations relative to protecting American lives and property in Mexico, the department's information indicates that the de facto government is now in control of all but a few sections of Mexico, and that, bearing in mind that the nation is just emerging from years of domestic strife, it may be said that within the territory which it controls it is affording, in all the circumstances, reasonably adequate protection to the lives and property of American citizens and that it is taking steps to extend its authority over and restore order in sections now in the hands of hostile factions. In this connection, however, it should be stated that the lawless conditions which have long continued throughout a large part of the territory of Mexico are not easy to remedy and that the great number of bandits who have infested certain districts and devastated property in such territory can not be suppressed immediately, but that their suppression will require some time for its accomplishment, pending which it may be expected that they will commit sporadic outrages upon lives and property.

(5) With reference to the protection of the lives and property of American citizens on or near the Mexican border, there is inclosed herewith an extract from a letter on the subject from the Secretary of War, dated January 26, 1916 (inclosure No. 6).

(6) With regard to the settlement of American claims against the Mexican Republic for injuries to the lives or property of American citizens, the undersigned has the honor to direct your attention to to the copy of a letter from Mr. Arredondo, dated October 7, 1915, and its inclosures, heretofore referred to and hereto appended as inclosure No. 4, and its annexes.

(7) With reference to the assurances given by the Mexican government concerning the protection of foreigners and "citizens," particularly respecting the free exercise of religion, the undersigned incloses herewith a copy of a letter on the subject from Mr. Arredondo, dated October 8, 1915 (inclosure No. 7).

(8) As heretofore stated, it is not considered compatible with the public interest to transmit to the Senate at the present time the correspondence regarding political conditions in Mexico. Much of this correspondence is of a highly confidential nature, submitted by the consular officers of the United States, by diplomatic or consular officers of other Governments, which have graciously consented that their officers might supply this Government with information during the necessary absence of American representatives, and by other persons residing in Mexico. To reveal the contents of the reports submitted by representatives of the United States and by

the representatives of other Governments, would be incompatible with public interest, as it would tend to impair the usefulness of these officials to their respective Governments; and to make public the personal and frequently confidential statements submitted from time to time by civilians, might seriously embarrass them.

It may be added that the papers requested by the Senate resolution comprise thousands of documents, the greater part of which set forth individual opinions and suggestions from different points of view, and therefore contain a mass of divergent and contradictory matter incapable of reduction to a harmonious statement of fact regarding the situation in Mexico or of the plans proposed for its improvement.

(9) With reference to the request for "data, letters, and reports relating to the closing of the port of El Paso and reopening same to importations of meat from Juarez," the undersigned has the honor to state that the port of El Paso has not been closed during this administration to the importation of meats from Juarez. If meats from Juarez were at any time prohibited entry into the United States, it was because such meats were not properly prepared to pass the inspection maintained under the regulations of the Department of Agriculture of this Government and not because the port of El Paso was closed to any particular class of imports.

With respect to the revocation of the mining decree issued by Gen. Villa, the undersigned incloses an extract from a dispatch from the American consul at Chihuahua, dated July 31, 1915 (inclosure No. 8), and a copy of the department's reply thereto, dated August 11, 1915 (inclosure No. 8A). There is also inclosed a copy of a telegram in regard to this matter from the Mine and Smelter Operators' Association, dated at El Paso, Tex., August 6, 1915 (inclosure No. 8B), together with a copy of an undated telegram from Mr. George C. Carothers, the department's special agent, received by the department on August 12, 1915 (inclosure No. 8C), stating that Gen. Villa's mining decree would not be enforced.

(10) Concerning the occupation and evacuation of Vera Cruz by United States land and naval forces, the undersigned has the honor to inclose a copy of Admiral Fletcher's telegram to the Secretary of the Navy, dated April 9, 1914 (inclosure No. 9), quoting a telegram from Admiral Mayo, of the same date, reporting the arrest at Tampico of the paymaster and a boat's crew of the U. S. S. *Dolphin*; a copy of a letter from the Secretary of the Navy, dated January 19, 1916 (inclosure No. 9A); and an extract from a letter from the Secretary of War, dated January 26, 1916 (inclosure No. 9B), hereinbefore mentioned as inclosure No. 6, in which reference is made to border conditions.

When the arrest of the men mentioned was reported to the Department of State, informal negotiations were immediately begun with the Huertista government with a view of settling the difficulty, but owing to the refusal of Gen. Huerta to comply with Admiral Mayo's demand for a salute, the negotiations were suspended. The American consuls in Mexico were informed by telegraph on April 20 1914, that the negotiations had been suspended, and that the President would lay the matter before the Congress on that date, with a view to taking such action as might be necessary to obtain reparation for the offense against the flag and Navy of the United States, and they were instructed to advise Americans to withdraw from Mexican territory.

On September 15, 1914, 7 p. m., the Department of State dispatched a telegram to the minister of Brazil at Mexico City, temporarily in charge of American interests, for delivery by him to Vice Consul Silliman, in which the latter was instructed to say to Gen. Carranza that the President was arranging to withdraw the American troops from Vera Cruz, and that he desired that some responsible authority be named to whom the customhouse could be turned over and that officials be designated to whom authority in the city could be delivered. On September 22, a telegram was sent to the minister of Brazil, in which the Carranza government was requested to give certain assurances in regard to the payment of taxes, treatment of refugees at Vera Cruz, and other matters. A copy of this telegram is inclosed herewith (inclosure No. 10).

On November 10, 1914, the minister of Brazil at Mexico City telegraphed Gen. Carranza's reply to the assurances requested on September 22. A copy of this telegram is inclosed herewith (inclosure No. 11).

I have also the honor to append a list (inclosure No. 12) of the citizens of the United States, who, from various causes, have lost their lives in Mexico during the years 1913, 1914, and 1915. The total is 76. From the latter part of February, 1913, when the military operations against Gen. Huerta began, to the close of the year 1915, a period of 34 months, a great portion of the territory of Mexico was the scene of domestic strife. Yet it may be noted that during the years 1910, 1911, and 1912, when a much smaller area was disturbed by war, 47 Americans lost their lives in Mexico (inclosure No. 12A); and this was at a time when the country was assumed to be at peace, since the Madero revolution, which began on November 20, 1910, lasted only six months.

While 76 Americans lost their lives in the entire territory of Mexico during the years 1913, 1914, and 1915, in the same period there were 20 civilian Americans and 16 American soldiers killed on American soil, adjacent to the international boundary (inclosures Nos. 12B and 12C), and during those years there were approximately 92 Mexicans killed in the same area (inclosure No. 12D).

These figures indicate that a condition of lawlessness prevailed along the border, due in large measure to factional conflicts in Mexican territory for ports of entry, and to the unfriendly personal relations existing between the American and Mexican residents in that region. The department, however, has no reliable information as to the number of Mexicans killed on the Mexican side of the boundary and in its immediate vicinity as a consequence of this state of disorder.

Respectfully submitted.

ROBERT LANSING.

DEPARTMENT OF STATE,
Washington, February 12, 1916.

[Inclosure No. 1.]

THE SECRETARY OF STATE TO MR. ARREDONDO.

DEPARTMENT OF STATE,
Washington, October 19, 1915.

MY DEAR MR. ARREDONDO: It is my pleasure to inform you that the President of the United States takes this opportunity of extending recognition to the de facto government of Mexico, of which Gen. Venustiano Carranza is the Chief Executive.

The Government of the United States will be pleased to receive formally in Washington a diplomatic representative of the de facto government as soon as it shall please Gen. Carranza to designate and appoint such representative; and, reciprocally, the Government of the United States will accredit to the de facto government a diplomatic representative as soon as the President has had opportunity to designate such representative.

I should appreciate it if you could find it possible to communicate this information to Gen. Carranza at your earliest convenience.

Very sincerely, yours,

ROBERT LANSING.

[Inclosure No. 2.]

STATEMENT OF THE PRESIDENT WITH REGARD TO MEXICO.

For more than two years revolutionary conditions have existed in Mexico. The purpose of the revolution was to rid Mexico of men who ignored the constitution of the Republic and used their power in contempt of the rights of its people; and with these purposes the people of the United States instinctively and generously sympathized. But the leaders of the revolution, in the very hour of their success, have disagreed and turned their arms against one another. All professing the same objects, they are, nevertheless, unable or unwilling to cooperate. A central authority at Mexico City is no sooner set up than it is undermined and its authority denied by those who were expected to support it. Mexico is apparently no nearer a solution of her tragical troubles than she was when the revolution was first kindled. And she has been swept by civil war as if by fire. Her crops are destroyed, her fields lie unseeded, her work cattle are confiscated for the use of the armed factions, her people flee to the mountains to escape being drawn into unavailing bloodshed, and no man seems to see or lead the way to peace and settled order. There is no proper protection either for her own citizens or for the citizens of other nations resident and at work within her territory. Mexico is starving and without a government.

In these circumstances the people and Government of the United States can not stand indifferently by and do nothing to serve their neighbor. They want nothing for themselves in Mexico. Least of all do they desire to settle her affairs for her, or claim any right to do so. But neither do they wish to see utter ruin come upon her, and they deem it their duty as friends and neighbors to lend any aid they properly can to any instrumentality which promises to be effective in bringing about a settlement which will embody the real objects of the revolution—constitutional government and the rights of the people. Patriotic Mexicans are sick at heart and cry out for peace and for every self-sacrifice that may be necessary to procure it. Their people cry out for food and will presently hate as much as they fear every man, in their country or out of it, who stands between them and their daily bread.

It is time, therefore, that the Government of the United States should frankly state the policy which in these extraordinary circumstances it becomes its duty to adopt. It must presently do what it has not hitherto done or felt at liberty to do, lend its active moral support to some man or group of men, if such may be found, who can rally the suffering people of Mexico to their support in an effort to ignore, if they can not unite, the warring factions of the country, return to the constitution of the Republic so long in abeyance; and set up a government at Mexico City which the great powers of the world can recognize and deal with, a government with whom the program of the revolution will be a business and not merely a platform. I therefore publicly and very solemnly call upon the leaders of faction in Mexico to act, to act together, and to act promptly for the relief and redemption of their prostrate country. I feel it to be my duty to tell them that, if they can not accommodate their differences and unite for this great purpose within a very short time, this Government will be constrained to decide what means should be employed by the United States in order to help Mexico save herself and serve her people.

WASHINGTON, *June 2, 1915.*

APPEAL TO GENERALS, GOVERNORS, AND OTHER MEXICAN LEADERS.

[Inclosure No. 3. Sent to all consuls in Mexico under date of Aug. 13 and 14, 1914.]

[Translation.]

WASHINGTON, D. C., *August 11, 1915.*

The undersigned, the Secretary of State of the United States, the ambassadors extraordinary and plenipotentiary of Brazil, Chile, and Argentina, and the envoys extraordinary and ministers plenipotentiary of Bolivia, Uruguay, and Guatemala, accredited to the Government of the United States of America, acting severally and independently, unanimously send to you the following communication:

Inspired by the most sincere spirit of American fraternity, and convinced that they rightly interpret the earnest wish of the entire continent, have met informally at the suggestion of the Secretary of State of the United States to consider the Mexican situation and to ascertain whether their friendly and disinterested help could be successfully employed to reestablish peace and constitutional order in our sister Republic.

In the heat of the frightful struggle which for so long has steeped in blood the Mexican soil, doubtless all may well have lost sight of the dissolving effects of the strife upon the most vital conditions of the national existence, not only upon the life and liberty of the inhabitants, but on the prestige and security of the country. We can not doubt, however—no one can doubt—that in the presence of a sympathetic appeal from their brothers of America, recalling to them these disastrous effects, asking them to save their motherland from an abyss—no one can doubt, we repeat—that the patriotism of the men who lead or aid in any way the bloody strife will not remain unmoved; no one can doubt that each and every one of them, measuring in his own conscience his share in the responsibilities of past misfortune and looking forward to his share in the glory of the pacification and reconstruction of the country, will respond, nobly and resolutely, to this friendly appeal and give their best efforts to opening the way to some saving action.

We, the undersigned, believe that if the men directing the armed movements in Mexico—whether political or military chiefs—should agree to meet, either in person or by delegates, far from the sound of cannon, and with no other inspiration save the thought of their afflicted land, there to exchange ideas and to determine the fate of the country—from such action would undoubtedly result the strong and unyielding agreement requisite to the creation of a provisional government, which should adopt the first steps necessary to the constitutional reconstruction of the country—and to issue the first and most essential of them all, the immediate call to general elections.

An adequate place within the Mexican frontiers, which for the purpose might be neutralized, should serve as the seat of the conference; and in order to bring about a conference of this nature the undersigned, or any of them, will willingly, upon invitation, act as intermediaries to arrange the time, place, and other details of such conference, if this action can in any way aid the Mexican people.

The undersigned expect a reply to this communication within a reasonable time; and consider that such a time would be 10 days after the communication is delivered, subject to prorogation for cause.

Robert Lansing,
Secretary of State of the United States.
D. da Gama,
Ambassador Extraordinary and Plenipotentiary of Brazil.
Edo. Suárez-Mujica,
Ambassador Extraordinary and Plenipotentiary of Chile.
R. S. Naón,
Ambassador Extraordinary and Plenipotentiary of Argentina.
I. Calderon,
Envoy Extraordinary and Minister Plenipotentiary of Bolivia.
Carlos Maria de Pena,
Envoy Extraordinary and Minister Plenipotentiary of Uruguay.
Joaquín Méndez,
Envoy Extraordinary and Minister Plenipotentiary of Guatemala.

[Inclosure No. 4.]

MR. ARREDONDO TO THE SECRETARY OF STATE.

Agencia Confidencial del
Gobierno Constitucionalista de México,
Washington, D. C., October 7, 1915.

Mr. Secretary: In consideration of the agreement between your excellency and the other American representatives, during the last conference held in New York, on the 18th ultimo, I have the honor to transmit herewith, for your excellency's information, a brief review of the Mexican revolution, initiated by Mr. Venustiano Carranza in February, 1913, explaining its origin, development, and progress made to this day; and a copy of declarations made by Mr. Carranza, as the leader of the revolution and depository of the executive power of Mexico, which define the tendencies and program to be followed by the constitutionalist government, during its transitory period, indispensable for the holding of general elections in the Republic, wherefrom a definite constitutional government will emanate.

Mr. Venustiano Carranza, depository of the executive power of Mexico, whom I have the honor to represent in this country, has authorized me to say to your excellency that his public declarations of December 12, 1914, and June 11, 1915, bear the statement that the government he represents, in its capacity of a political entity, conscious of its international obligations and of its capability to comply with them, has afforded guaranties to the nationals, and has done likewise with regard to foreigners, and shall continue to see that their lives and property are respected, in accordance with the practices established by civilized nations and the treaties in force between Mexico and other countries.

That besides the above he will recognize and satisfy indemnities for damages caused by the revolution, which shall be settled in due time and in terms of justice.

I avail myself of this opportunity to reiterate to your excellency the assurance of my highest consideration.

E. ARREDONDO,
Confidential Agent.

His Excellency ROBERT LANSING,
Secretary of State of the United States of America,
Washington, D. C.

[Inclosure No. 4A.]

GEN. CARRANZA TO MR. ARREDONDO.

[Telegram.]

VERA CRUZ, MEXICO, *October 5, 1915.*

ELISEO ARREDONDO, Esq.,
Mexican Embassy, Washington, D. C.:

Your ciphered message dated yesterday. The general situation of the country is constantly improving, and preferent attention is being given to repairing railway lines in order to facilitate transportation of merchandise to place where they are lacking. It is untrue that the Zapatistas blew up a passenger train, as stated by you, and although several bands are harassing trains, these are well protected, and the persecution waged against will soon annihilate them. It is true that a minor officer killed a young lady, but he succeeded in escaping, but he is being pursued, and when arrested he will receive a severe punishment.

CARRANZA.

[Inclosure No. 4B.]

RÉSUMÉ OF THE MEXICAN CONSTITUTIONALIST REVOLUTION AND ITS PROGRESS.

The civil strife in Mexico, now nearing its end, which grew out of the arrest and subsequent death of Francisco I. Madero and Jose Maria Pino Suarez, President and Vice President, respectively, of the Republic of Mexico, and was a consequence of the usurpation of power by Gen. Victoriano Huerta, had its beginning on the 19th of February, 1913. On this date Mr. Venustiano Carranza, upon being apprised of the above-mentioned outrageous assault and of the infringement of the federal constitution, and acting in his capacity of governor of the State of Coahuila and in fealty to the oath he had taken upon entering into the performance of his high investiture to preserve and cause all others to observe the federal constitution and to guard its institutions, repudiated the aforesaid Gen. Huerta as President of Mexico and initiated that which has been named as "The revolution of the Constitutionalist Party."

Mr. Venustiano Carranza, obeying the provision of the federal constitution which his oath of office involved as governor of the State of Coahuila, raised the flag of legality against the usurpation of federal power, at the same time calling all public officers in the country to do their duty and inviting all commanders of troops to repudiate and oppose Gen. Huerta as President of the Republic; but in view of the fact that none of the secretaries in the cabinet of Mr. Madero, who by operation of law and according to their precedence were expected to punish the outrage committed against the constitution, responded to the call to duty, Mr. Carranza was constrained to assume the leadership of the restorating movement because it was his duty to do do as governor of the State of Coahuila and pursuant to the unanimous vote of the citizens who at that moment had rallied around him to defend the political constitution of the united Mexican States and to save its institutions.

Mr. Carranza is, therefore, in the light of the federal constitution of Mexico, the rightful successor of Francisco I. Madero in the exercise of the executive power, to the exclusion of any other public officer, because he was the only one who complied with his duty according to the fundamental charter of the Republic.

The nomination of Mr. Carranza as chief of the revolution took place in the hacienda de Guadalupe, State of Coahuila, where the well-known "Plan of Guadalupe" was framed and enacted on March 26, 1913, which was the rule of action to be observed and followed by the army which was then being organized with the sole purpose of opposing and overthrowing the power of Gen. Victoriano Huerta, and which was wisely named at that time as "constitutionalist army."

In accordance with this brief, concise, and well-defined plan of action, the sole object of which and its only duty were to restore the effectiveness of the constitution trampled upon by Huerta and his accomplices, a small group of patriots lead by Mr. Carranza and seconded afterwards by the State of Sonora only, started a disadvantageous struggle against the central power of Huerta, who had the decided support of the federal army and of the powerful elements of the cientifico and reactionary party.

After a revolution of a year and a half which disturbed the whole country and has shed so much blood and caused so great injury to the Mexican people, Mr. Carranza made his triumphant entry into the City of Mexico at the head of the restorating army on August 19, 1914, taking immediate possession of the executive authority of the Republic of Mexico, in accordance with the plan of Guadalupe, dated March 26, 1913.

As soon as Mr. Carranza took his seat in the national palace of the City of Mexico, he began the organization of the various departments of state with view to attending at once to all the services of public administration, and at the same time complying with a verbal promise he made to all the leaders who seconded the plan of Guadalupe when the constitutionalist army should occupy the City of Mexico. He called all the governors and leaders in command of troops to a meeting which was to take place on the 1st day of October, 1914, for the purpose of discussing and adopting the program or platform which the constitutionalist government should follow prior to elections; the reforms which should be carried into effect; the date on which elections should be held, and all other matters of general interest which the circumstances might require.

But Gen. Francisco Villa, who was then the commander of the northern division of the constitutionalist army, who had signed and sworn to support the plan of Guadalupe, induced and encouraged by a group of sordid and ambitious counselors, who had not been admitted by Mr. Carranza, and confirming his rebellious designs against the first chief, of which he had given evidence since the month of June of 1914, when he refused to obey the orders of his chief to go to the rescue of Gen. Panfilo Natera, who was attacking the city of Zacatecas, which was then occupied by Huerta's forces, made a reply to the call, stating that neither he nor any of the generals of his division would attend the meeting to be held on October 1 in Mexico, at the same time publishing a declaration repudiating the leadership of Mr. Carranza and alleging that he was not the man required by the circumstances to occupy the presidency of the Republic and insure the triumph of the revolution.

The convention was, therefore, held without the attendance of the northern division, among the other military commanders and governors of States; but as soon as the sessions were initiated, Mr. Carranza considered that Gen. Villa and the commanders of his division were obstinate in a futile struggle which would again stain Mexico's soil with the blood of its people and would be of disastrous consequences, and seeing with sadness that several other leaders were vacillating in the face of danger and the hardships of a new struggle, loyal to the principles of abnegation and patriotism of which he had given evidence, and guided only by the desire to avoid greater evils to his country, he appeared before the assembly on a certain day in the legislative palace of Mexico and astonished everybody by relinquishing before it the power with which he had been vested, promising to retire to private life and even to leave the country, stating that he would return the authority to those who had conferred it on him and hoped that they would know how to save the Republic from a new struggle growing out of Villa's rebellion and would carry into practice the reforms of an economic and social order which the people demanded and which had been the subject of the strife.

Mr. Carranza, divested of all command and as a simple citizen, returned to his home, leaving the convention in complete liberty to continue its sessions and to discuss and designate the person who should take his place.

The convention went on with its work, and, after brief deliberations concerning the resignation of Mr. Carranza, all those present unanimously decided to call him back and ask him to resume the duties of first chief of the constitutionalist army and to continue at the head of the executive power of the nation, inasmuch as he was the genuine representative of the revolution, the faithful interpreter of its tendencies and purposes. To that effect, a committee of five generals appointed by the convention called at the home of Mr. Carranza at a late hour of the night and a few minutes later carried him to the chamber of deputies, where the important convention was being held, where he was received amidst the applause of the attendants who acclaimed him as their chief and again invested him with the power of the nation; and Mr. Carranza, responding to the necessities of the country and his voice of his partisans, accepted the trust and once more protested that he would do his duty and would defend the principles and program of the revolution against the ambitions and malevolence of its enemies, to whom the rebellion of Villa should be added.

Mr. Carranza having again taken charge of the executive power of the nation and invested again with the character of first chief of the constitutionalist army, several army officers called upon him asking his permission to proceed north in order to confer with the commanders of the northern division headed by Gen. Villa, in an effort to procure an agreement with them and avoid the menacing conflict which everyone felt would be of serious consequences for the cause and the interests of Mexico. After several interviews in which Mr. Carranza constantly endeavored to dissuade the aforesaid generals from the futility of their intent, admonishing them against the antecedents, ignorance, and well-known traits of Villa, which could hardly inspire any confidence in his agreements and promises, permitted them to go to Aguascalientes, where they were to meet the others, but reserving to himself the authority on any decision adopted until he would know the result of the above-mentioned conferences.

The mere conversation and exchange of opinions and judgment among the aforesaid leaders, moved only by the desire to avoid the nearing conflict, was a sufficient pretext for Villa to give them the character of a convention, which began by simple conferences and ended by assuming the name of a sovereign convention, which dictated a new program for the revolution and completely disregarded the plan of Guadalupe.

It is well known that Gen. Villa immediately sent troops in large numbers to the city of Aguascalientes and by means of this manifestation of violence succeeded in having Gen. Eulalio Gutierrez appointed provisional president of Mexico for a term of 20 days, with the avowed purpose of eliminating Mr. Carranza from the position of first chief and of his trust as depository of the executive power which had been then ratified in his favor. It is also a well-known fact, within as well as without Mexico, that only a few days had to pass when Villa revolted also against Provisional President Gutierrez, the choice of the so-called convention, and accompanied by a body of armed troops attacked him in his own home, forcing Gutierrez to flee from the capital to save his life.

Once the works of the so-called convention ended at Aguascalientes and having set in relief, as stated before, that the aim of Villa was no other than to assume power by assault and declare himself the dictator of Mexico, the various leaders and officers, who, deceived on the one hand and startled on the other by the precipitation of the occurrence and their lack of experience in political matters, had attended the Aguascalientes convention, returned to the side of the first chief and once more declared their willingness to defend the government of Mr. Carranza against the malevolence and ambitions of Villa and those who followed him.

It was at that time, October of last year, that the second struggle which Mr. Carranza had to face began; and it has been necessary to devote one whole year of hardships and sacrifice; to destroy thousands of lives and interests of the country to overpower the Villa faction, which at this time, already disorganized, without elements of support, followers, or cohesion, has been confined to the material occupation of the northern portion of the State of Chihuahua and a part of the State of Sonora.

In order to foster his ambitions, Gen. Villa sent Gen. Felipe Angeles to the State of Morelos to seek the allegiance of the Zapata faction in the new fight against Mr. Carranza, for which purpose he made Zapata all kinds of promises and succeeded in having a group of 26 Zapatista delegates attend the Aguascalientes convention, although they had no credentials of any kind or color to attend the conference, nor had ever been identified as revolutionaries; but this was of no avail, for the ends which Villa and Angeles pursued, whose ambition was to secure a majority in the convention, which would insure the success of their purpose.

The Zapata faction, which has never been an organized nucleus of resistance, and composed merely of bands of marauders numbering sometimes 100, 50, 20, 10, and even less men, never was nor has been in accord with the Villa faction except in their intention to fight Mr. Carranza; but these latter having been defeated by the forces under Gens. Gonzalez and Coss, have retired to their mountain hiding in the State of Morelos, and their activity is reduced to raids in the States of Mexico, Vera Cruz, and the Federal district, where they attack defenseless towns and passenger trains without any other object or finality than to rob and profit by the proceeds of their loot, all of whom are acting on their own personal initiative and are living in this manner outside of the pale of any authority or law.

From the above it appears that the constitutionalist party, headed by Mr. Carranza, initiated the revolution against Huerta in February, 1913, and organized and equipped successively in various States of the Republic an army of volunteers which fought the usurpation of Huerta, and finally threw him out of power, as hereinbefore stated; and has also fought and completely defeated the factions of Villa and Zapata, who had revolted against the authority of the first chief.

At the present time Mr. Carranza controls 24 States of the 27 which make up the Republic, and the territories of Tepic and Quintana Roo and the Federal district, and has established in each of them a local government which attends the various branches of public service, as hereinafter stated, giving the names of the governors ruling the States:

In Sinaloa the governor is Engineer Manuel Rodriguez Gutierrez; in Nuevo Leon, Licentiate Pablo de la Garza; in Coahuila, Licentiate Gustavo Espinosa Mireles; in Tamaulipas, Gen. Luis Caballero; in Durango, Gen. Domingo Arrieta; in Zacatecas, Gen. Romulo Figueroa; in Aguascalientes, Gen. Martin Triana; in San Luis Potosi, Gen. Gabriel Gavira; in Guanajuato, Dr. Jose Suirob; in Queretaro, Gen. Gederico Montes; in Michoacan, Gen. Alfredo Elizondo; in Jalisco, Licentiate Manuel Aguierre Berlanga; in Colima, Gen. Juan Jose Rios; in Hidalgo, Gen. Nicolas Flore; in the Federal district, Gen. Ceasar Lopez de Lara; in Puebla, Col. Dr. Luis G. Cervantes; in Tlaxcala, Lieut. Col. Porfirio del Castillo; in Veracruz, Gen. Candido Aguilar; in Oaxaca, Gen. Jesus Agustin Castro; in Guerrero, Maj. Simon Diaz; in Yucatan, Gen. Salvador Alvarado; in Campeche, Gen. Joaquin Mucel; in Tabasco, Gen. Francisco Jose Mugica; in Chiapas, Gen. Blas Corral; in Quintana Roo, Col. Carlos Plank; in Tepic, Gen. Ernesto Damy; and in Mexico, Gen. Pascual Morales y Molina.

All of the above leaders of the constitutionalist army and governors who have been just appointed recognize the first chieftainship of Mr. Carranza and his authority as the depository of the executive power of the nation, as they have recently stated it when replying to the note addressed to them by the Secretary of State of the United States and the American diplomatic representatives, tendering their good offices as mediators and inviting them to a conference for the purpose of solving in this manner the struggle in Mexico.

From the above-mentioned reply it is seen that, differing from the leaders of the Villa and Zapata factions, who made individual replies to the aforesaid note according to their own judgment, all the Constitutionalist leaders referred their replies to Mr. Carranza, thus recognizing his character of chief of all of them and reiterating their allegiance to him. This example of discipline, cohesion, and solidarity of the Constitutionalist Party clearly manifests that it is not only a compact and organized group of men with predetermined tendencies but a real government from the point of view of international law, which has been able to demonstrate its ability to constitute itself and to gain the will and respect of the Mexican people.

The various executive departments are already installed in the City of Mexico, and in a short time Mr. Carranza will definitely transfer his offices to the capital of Mexico, in order to attend with more dispatch and efficiency to the exigencies of public administration.

The department of justice has already organized local courts and courts of first instance in the Federal District and Territories, and is now ready to carry into effect the agreed project for the organization of all the courts in the Republic and for the designation of such authorities as are within its province to appoint and which are not elective by popular vote.

In order to insure the regular operation of the government in general and those of every State, as well as to afford the greater possible guaranties to nationals and foreigners, the constitutionalist government has at its disposal an army of 150,000 men, who will support, as the circumstances may demand, the established government, and which is conveniently distributed throughout the country in five divisions or army corps, respectively named divisions of the northeast, northwest, center, south, and east, and respectively commanded by Gens. Jacinto Treviño, Alvaro Obregon, Salvador Albarado, and Pablo Gonzalez.

The declarations issued to the nation on December 14, 1914, and June 11 of the present year, clearly define the political program of the provisional constitutionalist government, which will be continued until the conditions of the country may permit the holding of general elections and the installation of a general congress. When the latter is established, Mr. Carranza will appear before it and render an account of the use he may have made of the extraordinary authority with which he is invested, as well as of the political, economic, and social reforms decreed by him during the revolutionary period, to the end that the above-mentioned reforms may be given the character of constitutional provisions, or may be repealed, amended, or supplemented by the aforesaid high assembly.

In conclusion, Mr. Carranza has authorized all of the division generals to extend amnesty to their opponents, and to the present date thousands of soldiers, officers, and civilians have availed themselves of this prerogative, and a decree is now in course of preparation in order that Mexicans residing abroad, whose antecedents or the offenses they have committed in Mexico may not constitute a menace to public order and the peace needed for the reconstruction of the country, may return to their homes to look after their interests and follow their usual occupations. This, without doubt, will contribute to a general improvement of Mexico and to the resumption of all activities in commerce, industry, and agriculture, thus cooperating to the welfare and prosperity of Mexico.

In regard to soldiers of the defeated factions who are still in a hostile attitude toward the constitutionalist government, all of them, or a greater majority, are awaiting the decision regarding the recognition of the Mexican government in order to depose their arms; and if they have not done this to this day it is due to the especial psychology of all irregular armies which do not grasp the true situation, and, exaggerating what they consider their self-pride and military dignity, they leave to time the preparation of a better opportunity to depose their arms without blemish to their erroneous idea of honor.

Summing up the conditions hereinbefore stated with the endurance of the constitutionalist army during the struggles, with its good disposition to organize a local government, as has been done in each State under its control, and with the efficiency with which it has been able to afford safety to life and property of nationals and foreigners alike during the war, it is evident that Mr. Carranza's government constitutes a real entity and possesses a political existence of its own, willing to comply with the duties of international life, and has the ability to conform to them.

E. ARREDONDO,
Confidential Agent of the Constitutionalist Government of Mexico.

WASHINGTON, D. C., *October 7, 1915.*

[Inclosure No. 4C.]

PLAN OF GUADALUPE.

PLAN OF GUADALUPE SIGNED BY 64 OFFICERS OF THE TROOPS OF THE STATE OF COAHUILA ON THE 26TH DAY OF MARCH, 1913.

DECLARATION TO THE NATION.

Whereas Gen. Victoriano Huerta, to whom Francisco I. Madero, constitutional President of Mexico, intrusted the defense of the institutions and the legality of his government, on uniting with the rebel enemies in arms opposing the same government, to restore the former dictatorship, committed the crime of treason to reach power, by arresting the President and Vice President, as well as the members of the cabinet, forcing them under menace to resign their posts, as shown by messages addressed by the same Gen. Huerta to governors of the States, advising them that he had the chief executives of the Republic and the cabinet as his prisoners; and

Whereas the legislative and judicial powers have recognized and protected Gen. Huerta and his illegal and antipatriotic proceedings, contrary to constitutional laws and precepts; and

Whereas several governors of States of the Republic have recognized the illegitimate government, imposed by that part of the army which consummated the treason, headed by the aforesaid Gen. Huerta, notwithstanding that the sovereignty of those very States, whose governors should have been the first to repudiate Huerta, had been violated, we, the undersigned, chiefs and officers commanding the constitutionalist forces, have agreed upon, and shall sustain with arms, the following:

PLAN.

1. Gen. Victoriano Huerta is hereby repudiated as President of the Republic.
2. The legislative and judicial powers of the federation are also hereby disowned.
3. The governors of the States who still recognize the federal powers of the present administration, shall be repudiated 30 days after the publication of this plan.
4. For the purpose of organizing the army, which is to see that our aims are carried out, we name Venustiano Carranza, now governor of the State of Coahuila, as first chief of the army, which is to be called constitutionalist army.
5. Upon the occupation of the city of Mexico by the constitutionalist army, the executive power shall be vested in Venustiano Carranza, its first chief, or in the person who may substitute him in command.
6. The provisional trustee of the executive power of the Republic shall convene general elections as soon as peace may have been restored and will surrender power to the citizen who may have been elected.

The citizen who may act as first chief of the constitutionalist army in the States whose government might have recognized that of Huerta, shall take charge of the provisional government and shall convene local elections, after the citizens elected to discharge the high powers of the federation may have entered into the performance of their duties, as provided in the foregoing bases.

[Inclosure No. 4D.]

DECREE OF GEN. CARRANZA.

DEPARTMENT OF THE INTERIOR.

I, Venustiano Carranza, first chief of the constitutionalist army and depository of the executive power of the Republic of Mexico, taking into consideration—

That on the arrest of the President and Vice President, on the 19th of February, 1913, by ex-Gen. Victoriano Huerta, and the usurpation of public power by the latter, on the 20th of the same month, and immediately thereafter depriving the above-mentioned public officers of their lives, the constitutional order of the Republic was interrupted and thus the country was deprived of a lawful government;

That the undersigned, in his capacity as constitutional governor of the State of Coahuila, had solemnly taken the oath to observe and cause the general constitution to be observed, and that, complying with this duty and of the above oath, he was inevitably obliged to rise in arms to oppose the usurpation of Huerta, and to restore constitutional order in the Republic of Mexico;

That this duty, furthermore, was imposed upon him in a precise and express manner by a decree of the legislature of the State of Coahuila, by which he was categorically directed to repudiate the government of the usurper Huerta and to oppose it by the force of arms until it would be completely overthrown;

That, in view of the occurrence, the undersigned called all patriotic Mexicans to arms, and with the first ones who followed him he framed the plan of Guadalupe, on March 26, 1913, which has served to this day as the banner and by-law of the constitutionalist revolution;

That, from the military groups which were formed to oppose Huerta's usurpation, the divisions of the northwest, northeast, east, center, and south, operated under the leadership of the first chieftainship, perfect harmony existing between this and the former, and complete coordination in the means of action to accomplish the desired purpose; though the same did not occur with the northern division, which, under the command of Gen. Francisco Villa, showed from the beginning private tendencies, and finally severed its connections with the headquarters of the constitutionalist revolution, acting according to its own initiative, to such extent that the first chief does not know to this day, in a great measure, the means by which the above-mentioned general has secured funds and sustained the campaign, the amount of such funds and the use he may have made of them;

That, upon the arrival at the City of Mexico of the victorious revolutionary army, it endeavored to properly organize the provisional government, and was getting ready besides, to meet the demands of public opinion, by a satisfactory solution of the imperative exigencies of social reform needed by the people, when it was confronted with the difficulties which the reaction had been preparing in the bosom of the northern division, in order to frustrate the triumphs reached by the efforts of the constitutionalist army;

That the first chieftainship, anxious to organize the provisional government in accordance with the ideas and tendencies of the men who, with arms in hand, made the constitutionalist revolution, and who, therefore, were intimately cognizant of the ideals which were pursued, called a general convention to be held in the City of Mexico, composed of generals, governors, and officers in command of troops, to the end that all of them together should decide on a program of government, indicate in a general way such reforms as seemed indispensable for the accomplishment of the social and political redemption of the nation, and would establish the form and time when constitutional order should be restored;

That this purpose had soon to be deferred, because the generals, governors, and officers who attended the military convention in the City of Mexico considered it advisable that there should be representatives at all the meetings of the elements which had taken part in the fight against the usurpation of Huerta, as some of them had abstained from attending, giving as a pretext a lack of guaranties and because of the rebellion which Francisco Villa had already started against the chief's office, and on this account they expressed their desire to be transferred to Aguascalientes, the place they considered more appropriate and having the conditions of neutrality sought by the military convention for the prosecution of their work;

That the members of the convention adopted this determination after they had reiterated to the undersigned their confirmation of his functions as first chief of the constitutionalist revolution and depository of the executive power of the Republic, which investiture he had then relinquished formally, in order to show that he was not animated by undue sentiments of personal ambition, but that, in view of existing difficulties, his cherished aim was that revolutionary action should not be divided, and thus frustrate the fruits of the victorious revolution;

That this first chieftainship made no opposition to the transfer of the military convention to the city of Aguascalientes, although it was intimately persuaded that, far from obtaining the conciliation sought, the separation between the commander of the northern division and the constitutionalist army would become still deeper, because the first chief did not wish to make the impression that he had the deliberate intention of excluding the northern division from the discussion upon matters of the greatest importance; also because he did [not ?] wish to appear as refusing that a last effort toward conciliation should be made, and because he believed that it was imperative for the good of the revolution that the true motives of Gen. Villa should be disclosed in an evident manner before national conscience, relieving from error those who in good faith believed in the sincerity and patriotism of Gen. Villa and the group of men who surrounded him;

That so soon as the works of the Aguascalientes convention were initiated the machinations of the Villista agents were laid bare, they having performed the principal rôle at the convention, and the system of threats was felt and unbridled pressure was put to practice against those who, on account of their sense of honor and spirit of independence, opposed the impositions of the commander of the northern division to direct the works of the convention to suit his pleasure;

That, on the other hand, many of the chiefs who attended the Aguascalientes convention did not grasp the importance and true mission of the convention, and as they were men of little or no experience in political matters, their good faith was profited by the malicious agents of Villa, and dragged them to second inadvertently the maneuvering of the northern division, without regard to the cause of the people or even outlining the general thought of the revolution and the program of the preconstitutional government, which was generally desired;

That for the purpose of avoiding a controversy of a purely personal character and the further shedding of blood, the first chieftainship made every possible effort to reach a conciliation, offering to withdraw from power provided a government capable of carrying into effect the social and political reforms demanded by the country should be established. But having failed to satisfy the thirst for power of the northern division, notwithstanding the successive concessions made by the first chieftainship, and in view of the well-defined attitude of a great number of constitutionalist leaders who, repudiating the resolutions adopted by the Aguascalientes convention, ratified their allegiance to the plan of Guadalupe, this first chieftainship was constrained to accept the challenge to fight the reaction lead at present by Gen. Francisco Villa;

That the class of the elements on which Gen. Villa is banking, which are the same that prevented President Madero from directing his policy, are, therefore, politically responsible, in a radical sense, for his downfall. On the other hand, the express declarations made on several occasions by the commander of the northern division advocating the establishment of constitutional order before the social and political reforms demanded by the country take place, clearly demonstrate that the insubordination of Gen. Villa is of a strictly reactionary character and contrary to constitutionalist activities, and has for a purpose to frustrate the complete success of the revolution, preventing the establishment of a preconstitutional government intrusted with the enactment and enforcement of the reforms which have been the subject of the struggle which has been raging for the last four years;

That, therefore, it is a duty in behalf of the revolution and the fatherland to continue the revolution started in 1913, pursuing the fight against the new enemies of the liberty of the Mexican people;

That it being imperative, therefore, that the interruption of constitutional order should subsist during this new period of the struggle, the plan of Guadalupe should therefore continue to be in force, as it has been the guidance and banner of it, until the enemy may have been overpowered completely in order that the constitution may be restored;

That it having been impossible to carry into effect the purposes for which the military convention of October, 1914, was convened, and the purpose of the new fight being, on the part of the reactionary troops commanded by Gen. Villa, to prevent the realization of revolutionary reforms demanded by the Mexican people, the first chief of the revolution is obliged to procure, that at the earliest possible moment, there should be put into effect all the laws covering the political and economic reforms which the country requires, enacting the same during the struggle that is to be commenced;

That, therefore, and it being necessary for the plan of Guadalupe to remain in force in its essential part, it is imperative that the Mexican people and the constitutionalist army should clearly know the military ends which are being pursued in the present fight, which are the annihilation of the reaction creeping up with Gen. Villa at the head, and the establishment of the political and social principles which inspire this first chieftainship, which are the ideals for which the Mexican people have been fighting during the last four years.

That, therefore, and in accordance with the most general sentiments among the leaders of the constitutionalist army, the governors of the States and of other collaborators of the revolution, and interpreting the needs of the Mexican people, I, Venustiano Carranza, have seen fit to decree the following:

Article 1. The plan of Guadalupe of March 26, 1913, shall subsist until the complete triumph of the revolution, and, therefore, Citizen Venustiano Carranza shall continue in his post as first chief of the constitutionalist revolution and as depository of the executive power of the nation, until the enemy is overpowered and peace is restored.

Article 2. The first chief of the revolution and depository of the executive power of the Republic, shall enact and enforce, during the struggle, all the laws, provisions, and measures tending to meet the economic, social, and political needs of the country, carrying into effect the reforms which public opinion demands as indispensable for the establishment of a régime which will guarantee the equality of Mexicans among themselves, agrarian laws favoring the creation of small landowners, the suppression of latifundia or large landholders, and the restoration to townships of the lands illegally taken from them; fiscal laws tending to establish an equitable system of taxation on real estate; laws tending to improve the condition of the rural laborer, the workingman, the miner, and, in general, of the working classes; the establishment of municipal freedom as a constitutional institution; bases for a new system of organization of the army; amendments of the election laws in order to insure the effectiveness of suffrage; organization of an independent judicial power, in the federation as well as in the States; revision of the laws relative to marriage and the civil status of persons; provisions guaranteeing the strict observance of the laws of reform; revision of the civil, penal, and commercial codes; amendment of judicial procedure, for the purpose of expediting and causing the effectiveness of the administration of justice; revision of laws relative to the exploitation of mines, petroleum, water rights, forests, and other natural resources of the country, in order to destroy the monopolies created by the old régime and to prevent the formation of new ones; political reforms which will insure the absolute observance of the constitution of Mexico, and, in general, all the other laws which may be deemed necessary to insure for all the inhabitants of the country the effectiveness and full enjoyment of their rights, and their equality before the laws.

Article 3. In order to continue the struggle and to carry into effect the reforms referred to in the preceding article, the chief of the revolution is hereby expressly authorized to convene and organize the constitutionalist army and direct the operations of the campaign; to appoint the governors and military commanders of the States and to remove them freely; to effect the expropriations on account of public utility which may be necessary for the distributions of lands, founding of townships, and other public services; to negotiate loans and issue obligation against the national treasury, indicating the property which shall guarantee them; to appoint and remove freely federal employees of the civil administration and of the States and to fix the powers of each of them; to make, either directly or through the chiefs he may appoint, requisitions for lands, buildings, arms, horses, vehicles, provisions, and other elements of war; and to create decorations and decree recompenses for services rendered to the revolution.

ARTICLE 4. Upon the success of the revolution, when the supreme chieftainship may be established in the city of Mexico and after the elections for municipal councils in the majority of the States of the Republic, the first chief of the revolution, as depository of the executive power, shall issue the call for election of congressmen, fixing in the calls the dates and terms in which the elections shall be held.

ARTICLE 5. Once the federal congress has been installed, the chief of the revolution shall render an account before it of the use he may have made of the powers with which he is vested hereby, and he shall especially submit the reforms made and put into effect during the struggle, in order that congress may ratify them, amend them, or supplement them, and to the end that those which it may see fit may be raised to the rank of constitutional precepts, before the reestablishment of constitutional order.

ARTICLE 6. The federal congress shall convene the people to the election of president of the Republic, and as soon as this takes place the first chief of the revolution shall deliver to the president elect the executive power of the nation.

ARTICLE 7. In case of absolute default of the present chief of the revolution and in the meantime the generals and governors proceed to the election of the person who is to take his place, the chief office shall be temporarily filled by the commander of the army corps at the place where the revolutionary government may be the time the default of the first chief occurs.

V. CARRANZA.
ADOLFO DE LA HUERTA,
Chief Clerk of the Department of the Interior.

CONSTITUTION AND REFORMS,
Vera Cruz, December 12, 1914.

[Inclosure No. 4E.]

DECLARATION TO THE NATION.

DECLARATION TO THE NATION BY THE FIRST CHIEF OF THE CONSTITUTIONALIST GOVERNMENT OF MEXICO AND DEPOSITORY OF THE EXECUTIVE POWER OF THE REPUBLIC.

At last, after five years of struggle brought about by the long régime of oppression, which kept alive and aggravated the economic and social unbalanced conditions of the colonial era, the revolution is about to end, overpowering the enemy and establishing definitely the economic reforms and political reforms, which constitute its purpose and which are the only ones which can insure the peace emanating from the welfare of the majority, from equality before the law and from justice.

The revolution has had the instinctive and generous sympathy of free countries, precisely because its aim has not been the mere change of personnel of the administration, but the complete substitution of a régime of oppression by a régime of freedom. The struggle has been a long one because the impatience of the revolutionaries to attain victory in 1911 gave room to the compromise with the elements of the old régime at Ciudad, Jaurez. From that moment, those elements accepted so easily and kindly, began their work of undermining within the revolutionary midst itself the prestige and authority of the men who a short time later were elevated to power by the free vote of the people. President Madero found himself in the impossibility of realizing the reforms demanded by the people; first, because within his own government almost the whole personnel of the old régime had remained, and, second, because he had to devote his whole time to fight that same old régime which had successfully risen in arms with Reyes, Orozco and Feliz Diaz, and which fomented at the same time that it vitiated the rebellion of Zapata. The reaction having been unable, in spite of the above, to suppress the reform tendencies of the new régime, it decided that the federal army should betray the legitimate government of the Republic. Treason was carried into effect by Gen. Huerta under the pretext of saving the City of Mexico from the horrors of war, and with the cooperation of a group of foreigners favored by the old régime and who surrounded Henry Lane Wilson, the President and Vice President were assassinated and due to the complicity or weakness of he other powers, the nation was left without a constitutional representative. Then I, as governor of the State of Coahuila, and in obedience to the constitutional provisions, articles 121 and 128 of our fundamental charter, assumed the representation of the republic in the terms in which the constitution itself vests me with this right, and supported by the people which rose in arms to regain its liberty. In fact, the above-mentioned articles provide the following:

> Every public officer, without exception, prior to his taking possession of his charge, shall render an oath that he will sustain the constitution and the laws emanating therefrom. This constitution shall not fail in force or vigor, even though on account of rebellion its observance may be interrupted. In the case that pursuant to a public disturbance a government contrary to the principles sanctioned by the constitution may be established, as soon as the people regains its freedom, its observance shall be reestablished, and, according to it and to the laws which by virtue of it may have been enacted, those who may have figured in the government emanated from the rebellion shall be tried as well as those who may have cooperated in the movement.

After overpowering the rebellion and usurpation of Huerta, and before the constitutionalist army reached the City of Mexico, the reactionaries, faithful to their old procedure, began to mingle in our ranks and to corrupt those who ought to have given their support to this government, determining as a result the repudiation of it by Gen. Villa and the formation of factions whose chiefs felt encouraged by the presence of foreign representatives who were with them.

When our forces left the City of Mexico, pursuant to a military and political plan, it was thought that the constitutionalist government had lost the support of the people and with it its prestige and force, and that it would follow the course of previous trespassers of public power, but the apparent victory of the reaction headed by Francisco Villa was still more ephemeral than the one obtained by the usurpation of Gen. Huerta, and to-day, after the greatest and most definite victories militarily obtained by the army of the people in various parts of the country, I can say to my countrymen that the constitutionalist government has control of over seven-eighths of the national territory; that it is organizing public administration in 20 out of 27 States of the Republic and in more than half of the other 7 States; that it controls all the maritime ports on the Gulf and on the Pacific Ocean, with the exception of Guaymas, and all the ports of entry on the northern and southern frontiers, with the exception of Piedras Negras, Ciudad Juarez, and Nogalés; that more than thirteen million of the fifteen which represent the population of the country—that is to say, nine-tenths of the total population of the Republic—are governed by the administration I preside; that day after day the factions are being routed and dispersed, their offensive action being limited at present to acts of brigandage, and that within a short time the occupation of the City of Mexico will contribute to make the action of the constitutionalist government more harmonious and efficient in all the territory of the Republic. Therefore, our country is nearing the end of its revolution and the consolidation of a definite peace, based on conditions of welfare and justice.

In the midst of the greatest difficulties and within that which may be humanely possible, the constitutionalist government has complied with its duties and has extenuated in behalf of the people the hardships of war, either forbidding the exportation of articles of prime necessity or adopting measures of practical effect to facilitate the acquisition of the same for the benefit of the poor; it has afforded guaranties and given protection to the inhabitants within the territory controlled by the constitutionalist forces, all of whom live a life of normal activity; it has prevented and punished the faults and abuses growing out of the state of social disturbance, which, lamentable as they may be, neither because of their number nor their importance, can be considered as characteristic feature of a governmental régime. I am the first one to deplore the privations which the Mexican people have had to suffer as a result of the war, which constitute one of the many sacrifices the people have to pass through in order to conquer their liberties; but I am decided to employ all the means which may be at the reach of the government to comply with the work of humanity demanded by the circumstances. Fortunately, the recent victories over the factions enlarge the sphere of action of the constitutionalist government and facilitate the compliance of the duties which all Governments have with regard to their constituents to afford guaranties to the inhabitants and to procure the welfare of the masses.

With regard to our foreign relations, notwithstanding that one of my first acts was to address a note by telegraph to the State Department of the United States of America apprising it of my capacity in front of the rebellion and the usurpation, one of the difficulties which has retarded our labors has been the lack of understanding between the government I have the honor to represent and the Governments of other nations, especially that of the United States.

The great interests of the old régime have created a real system of falsehoods and slander against this government, spreading them day after day through the channel of the powerful journals of the American "cientifico" press, which reach the ear of the press of the world, with the object of deforming before the opinion of other nations the procedure and the tendencies of the Mexican revolution; the same interests have used their influence to have false reports rendered to the Governments of other countries, and especially so with regard to the United States, whenever they have endeavored to form judgment concerning the Mexican situation. The constitutionalist government has been deprived of the facilities to make any rectifications against such reports, because it has been denied the opportunity and the means incidental to diplomatic relations between one country and another.

We feel that we are at the present time in condition to overcome this last difficulty, because the constitutionalist government is now in fact in definite possession of the sovereignty of the country; and the legitimate army of sovereignty is the essential condition to be borne in mind when deciding upon the recognition of a government, if as we expect it and desire it in behalf of the Mexican people and of the foreign residents of this country, the governments of other nations recognize the constitutionalist government, this act of justice will afford it an efficient moral assistance, not only to strengthen the friendly relations which Mexico has always maintained with those nations and be able to discuss their common affairs conciliating their mutual interests, but also to secure a more speedy consolidation of peace to establish a constructive constitutional government, supported by the reforms and the program of the revolution, whose aims are the greater good of the greater number.

I am, therefore, of the opinion that the time has come to call the attention of the warring factions which are still engaged in armed opposition against the constitutionalist government, to the futility of their attitude, because of the recent and definite victories gained by our army, as well as because of the conviction they must have of our sincerity and capability to carry into realization the ideals of the revolution. Therefore, I appeal to those factions to submit to the constitutionalist government in order to expedite the reestablishment of peace and to consumate the work of the revolution. With a view to realizing the above-mentioned purposes, I have deemed proper to inform the nation upon the political conduct to be observed by the constitutionalist government, in the performance of the program of social reform contained in the decree of December 12, 1914.

First. The constitutionalist government shall afford to foreigners residing in Mexico all the guaranties to which they are entitled according to our laws, and shall amply protect their lives, their freedom, and the enjoyment of their rights of property, allowing them indemnities for the damages which the revolution may have caused to them, in so far as such indemnities may be just and which are to be determined by a procedure to be established later. The government shall also assume the responsibility of legitimate financial obligations.

Second. The first concern of the constitutionalist government shall be to reestablish peace within the province of law and order, to the end that all the inhabitants of Mexico, both native and foreign, shall equally enjoy the benefits of true justice and be interested in cooperating to the support of the government emanating from the revolution. The commission of crimes of the common order shall be punished. In due time an amnesty shall be enacted in keeping with the necessities of the country and the situation, which in no way shall exempt those under it of the civil responsibilities they may have incurred.

Third. The constitutionalist laws of Mexico, known under the name of laws of reform, which establish the separation of the church and the state and which guarantee the individual right of worship in accordance with his own conscience and without offending public order, shall be strictly observed; therefore, no one shall suffer in his life, freedom, and property because of his religious beliefs. Temples shall continue to be the property of the nation according to laws in force, and the constitutionalist government shall again cede for the purposes of worship those which may be necessary.

Fourth. There shall be no confiscation in connection with the settlement of the agrarian question. This problem shall be solved by an equitable distribution of the lands still owned by the government; by the recovery of those lots which may have been illegally taken from individuals or communities; by the purchase and expropriation of large tracts of land, if necessary; by all other means of acquisition permitted by the laws of the country. The constitution of Mexico forbids privileges, and therefore all kinds of properties, regardless of who the owners may be, whether operated or not, shall in the future be subject to the proportional payment of a tax in accordance with a just and equitable valuation.

Fifth. All property legitimately acquired from individuals or legal governments, and which may not constitute a privilege or a monopoly, shall be respected.

Sixth. The peace and safety of a nation depends from the clear understanding of citizenship. Therefore, the government shall take pains in developing public education, causing it to spread throughout the whole country, and to this end it shall utilize all cooperation rendered in good faith, permitting the establishment of private schools subject to our laws.

Seventh. In order to establish the constitutional government, the government by me presided shall observe and comply with the provisions of articles 4, 5, and 6 of the decree of December 12, 1914, which reads as follows:

> Article 4. Immediately upon the success of the revolution and the reestablishment of the first chieftainship in the City of Mexico, and after the elections for municipal councils in the majority of the States of the Republic, the first chief of the revolution, as the depository of the executive power of the nation, shall convene the people to elections for members of the federal congress, fixing in the call the dates and terms in which such elections shall take place.
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> Article 5. Immediately after the installation of the federal congress the first chief of the revolution shall render an account before it of the use he may have made of the powers with which he is hereby invested, and he shall especially submit to it the reforms which may have been enacted and made effective during the struggle, to the end that congress may ratify them or amend them or complete them, and in order that it may give the vigor of constitutional provisions to those which ought to have such character prior to the establishment of constitutional order.
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> Article 6. The federal congress shall convene the people to the election of president of the Republic, and as soon this takes place the first chief of the revolution shall deliver to the president elect the executive power of the nation.

V. CARRANZA,
First Chief of the Constitutionalist Army
and depository of the Executive Power of the Republic of Mexico.

CONSTITUTION AND REFORMS,
Vera Cruz, June 11, 1915.

[Inclosure No. 4F.]

GEN. CARRANZA TO MR. ARREDONDO.

[Telegram.]

VERA CRUZ, *October 6.*

ELISEO ARREDONDO, Esq.,
Mexican Embassy, Washington, D. C.

I have taken note of your cipher message dated yesterday. Please deny that there are any disturbances in the frontier of Chiapas against Guatemala and that the Government under my direction is in some way favoring revolution in above-mentioned country.

A part of the State of Oaxaca is not under our control but the Constitutionalist Government controls the rest of the State wherein the important Isthmian Railway is situated and very soon the whole State will be under the power of our forces.

It is so far impossible to state just when our forces will control the Yaqui Valley, Sonora, but there are no important reactionary nucleuses to suppress and within a short time there will be only a few bands of marauders left.

The amnesty law will be issued in favor of those who are not charged with the commission of civil crimes while in position of official responsibility. It will be issued as soon as the Government may have terminated the campaign and consolidated itself (after recognition) for if all the political refugees now expatriated and their accomplices of the usurpation (by Huerta) are allowed to come back at once, they will only come here to continue their work of conspiracy and to bring about greater evils than those which the country already has suffered on their account.

V. CARRANZA.

[Inclosure No. 5.]

SECRETARY OF WAR TO SECRETARY OF STATE.

WAR DEPARTMENT,
Washington, February 10, 1916.

The Secretary of War presents his compliments to the honorable the Secretary of State, and incloses, in accordance with the verbal request made this date by the chief, division of Mexican affairs, additional copies of report No. 146 of general conditions along the Mexican border based on weekly reports of January 1, 1916, from the local military commanding officers, and upon information received from all other sources, and Report No. 148 of similar conditions for the week ending January 15, 1916.

[Inclosure No. 5A.]

WEEKLY REPORT OF GENERAL CONDITIONS.

Weekly report of general conditions along the Mexican border, based on weekly reports of January 1, 1916, from the local military commanding officers and upon information received from all sources to date.

BROWNSVILLE.

The commanding officer, Brownsville Cavalry patrol district, reports: "Nothing of importance to report."

The commanding officer, Brownsville subdistrict, reports as follows: "Absolute quiet prevailed during the week ending December 31, 1915. A number of families who went over into Mexico with their furniture, stock, and other belongings, during the height of the bandit trouble, have returned to this side with their belongings. From all appearances, conditions have assumed their normal state along the border."

HARLINGEN.

The commanding officer, subdistrict of Harlingen, reports: "Nothing of special interest to report. The Mexicans who attempted to cross the river near Los Indios the last week were not bandits, and their attempt has no significance."

Los Indios.—"Two Mexicans were apprehended December 26 while attempting to cross the Rio Grande from Mexico below San Benito pump. Two other Mexicans were apprehended December 27, one while attempting to cross near the Harlingen pump, the other near San Benito pump. The above was made the subject of a special report dated the 28th instant."

Mercedes Headgate.—"The past week has been very quiet. There is nothing further to report."

Landrum's Ranch, La Paloma.—"Nothing extraordinary has happened in this sector during the period."

San Pedro Ranch, San Bonito.—"No unusual occurrences."

Santa Maria.—"All quiet."

The commanding officer, Twenty-sixth Infantry, Harlingen, reports: "Quiet. Conditions improving."

Mercedes.—"Conditions have remained normal during the week."

Mission.—Following from commanding officer, Twenty-eighth Infantry: "Conditions remained normal throughout the week ending January 1. Two families emigrated to Mexico during the week and 74 families of 134 persons immigrated to the United States during the same period."

The commanding officer, cavalry camp at Mission, reports: "Conditions have continued normal during the past week."

FORT RINGGOLD, RIO GRANDE.

"Conditions have remained normal during the past week."

LAREDO.

The commanding general, Second Brigade, reports: "Conditions in this district have remained quiet during the week."

The commanding officer, Fort McIntosh, reports: "Everything has remained quiet in this district during the past week."

EAGLE PASS.

The commanding officer, Seventeenth Infantry, reports: "Nothing has occurred to report on border conditions during the week."

The commanding officer, detachment Fourteenth Cavalry, Eagle Pass, reports: "Conditions remain normal in this district."

DEL RIO.

"Nothing of importance to report."

WESTERN TEXAS CAVALRY PATROL DISTRICT.

MARFA.

"Nothing of importance to report. Quiet has maintained throughout the district. The garrison of the de facto Mexican government at Ojinaga consists of about 300 men; 150 of whom are regulars and the remainder apparently local volunteers."

EIGHTH BRIGADE.

FORT BLISS, EL PASO.

The following report, dated January 2, 1916, was received from the commanding general, Eighth Brigade: "The garrison of Juarez having been transferred to Carranzista control, there were 800 Mexican (Carranza) soldiers sent there from Chihuahua on the 29th ultimo. About 2,300 Carranza soldiers with baggage and camp followers were disembarked at Pelca on the 30th ultimo and marched into Juarez from that point without incident. Gen. Obregon left El Paso on the 1st instant for Chihuahua. The whereabouts of Gen. Villa continues to be unknown. Conditions in this vicinity seem to be peaceful and it is reported that most of the ex-Villa troops have been mustered out, paid off, and returned to their homes."

COLUMBUS.

"The Villista forces at Palomas, Mexico, and the Border Gate have transferred their allegiance to the Carranza Government."

HACHITA.

"Border conditions in this patrol district for week ending January 1, 1916, have remained normal."

DOUGLAS.

The following report, dated January 2, 1916, was received from the commanding officer, Second Cavalry Brigade:

"*Military situation.*—In and about Agua Prieta there have been no military movements of any kind. Peace reigns to the south and southeast and no reports of Villistas have been received during the past week."

"*Business outlook.*—Train service between Douglas and Nacozari was resumed on Saturday, January 1. The large bridges that were burned have been temporarily repaired and it is expected that the regular traffic will be resumed within four or five days. Practically all of the mining people who were compelled to leave Sonora on account of the Villa campaign have returned to their mines, the Nacozari Railroad granting them free transportation south.

"It is expected that the whole State of Sonora will be normal within a week or 10 days.

"With the opening of the railroad there were heavy shipments of concentrates to the Copper Queen Smelter in Douglas. The Montezuma Mining Co. have their mines and mill now in operation."

The commanding officer, Seventh Cavalry, reports: "Conditions have remained normal in this vicinity during the week."

NACO.

The following report, dated January 1, was received from the commanding officer of this station: "Nothing of importance has occurred in this vicinity during the week. The mines and furnaces of the Cananea Consolidated Copper Co. are in full operation. The Southern Pacific de Mexico Railroad is operating on both the Cananea and Nogales branches. On December 30, 1915, Gen. Gavira, with his brigade, was transported by way of the El Paso & Southwestern Railroad from Naco, Sonora, to Palayas, N. Mex., en route to Juarez. Each of the two sections of the train carrying these Mexican troops was accompanied by one commissioned officer and eight men of my command."

[Inclosure 5B.]

WEEKLY REPORT OF CONDITIONS ON MEXICAN BORDER.

Weekly report of general conditions along the Mexican border, based on weekly reports of January 15, 1916, from the local military commanding officers and upon information received from all sources to date:

BROWNSVILLE.

The commanding officer, Brownsville Cavalry patrol district, reports as follows: "About 15 wagonloads of furniture came over the past week with Mexican families returning to the United States, which shows to some extent increased confidence in the stability of present conditions."

The commanding officer, subdistrict of Brownsville, reports as follows: "Nothing unusual developed during the week. Conditions normal. The reported withdrawal of the squadron of the Twelfth Cavalry from the valley, in my opinion, is responsible for the several rumors of bandit movements across the river. The residents of the lower valley of the Rio Grande will oppose the withdrawal of any troops from the valley, and any suggested movement of troops away from this locality will, no doubt, bring on a new crop of rumors."

HARLINGEN.

The commanding officer, Twenty-sixth Infantry, reports "conditions quiet during the week."

The commanding officer, Sixth Cavalry, reports: "No disturbances due to bandits this week. It is said that Miguel Garcia from near El Soliseno Rancho, opposite Santa Maria, was trying to enlist men to make a raid into United States and offered a dollar a day as wages. He failed to get any recruits."

MERCEDES.

"Conditions have remained normal during the period in this section."

MISSION.

The commanding officer, Twenty-eighth Infantry, reports: "Conditions remained normal in this district during the week ending January 16, 1916. During this week one family emigrated to Mexico and 48 families of 80 persons immigrated to the United States."

The commanding officer of the Cavalry camp at Mission reports: "Conditions have continued normal during the past week."

FORT RINGGOLD, RIO GRANDE.

Report not received.

LAREDO.

The following report, dated January 15, was received from the commanding general, Second Brigade: "Conditions in and around Laredo have remained quiet and unchanged for the past week. Americans coming out of Mexico report a great deal of typhus fever, especially in the City of Mexico and in the towns between there and our border. There are now two cases of typhus in Laredo in the city pesthouse. Up to date there have been five cases, one of which died and two recovered."

The commanding officer, Fort McIntosh, reports: "Everything has remained quiet in this district during the past week."

EAGLE PASS.

The commanding officer, Seventeenth Infantry, reports: "Nothing has occurred to report on border conditions during the week."

The commanding officer, detachment, Fourteenth Cavalry, Eagle Pass, reports: "Conditions remain normal in this district."

DEL RIO.

"Conditions remain normal in this vicinity."

WESTERN TEXAS CAVALRY PATROL DISTRICT.

MARFA.

"Nothing of importance to report. Things have remained quiet throughout the entire district during the past week."

COLUMBUS.

The commanding officer of this station reports as follows: "It is reported that the Carranzista forces at Palomas, Mexico, have been reinforced by about 50 cavalrymen and 30 infantrymen."

HACHITA.

"Border conditions in this patrol district for the week ending January 15, 1916, have remained normal."

DOUGLAS.

The following report, dated January 15, 1916, was received from the commanding officer Second Cavalry Brigade:

"*Military situation.*—On January 13, 150 men under Col. Quevedo left Agua Prieta for Casas Grandes, to cooperate with other Carranza forces said to have been sent from Juarez. Maj. Campbell, in command, of the garrison at Agua Prieta, gave strict orders to Col. Quevedo that there should be no raiding of the country through which his troops passed and to exterminate any Villa soldiers found.

"*Economic situation.*—South of Douglas, in the Nacozari and Moctezuma districts, great activity is reported. Mining men are returning to open up their properties, and it is probable large shipments will be made in the near future. The hotel at Nacozari is crowded and means are being taken to increase the accommodations, on account of the heavy traffic expected in the spring."

The commanding officer Seventh Cavalry reports: "Conditions have remained normal in this vicinity during the week."

NACO.

"All has been quiet from a military standpoint in this vicinity during the week."

[Inclosure No. 6.]

SECRETARY OF WAR TO SECRETARY OF STATE.

WAR DEPARTMENT,
Washington, January 26, 1916.

The honorable the SECRETARY OF STATE.

MY DEAR MR. SECRETARY: Referring further to your letter of January 17, 1916, stating that the Department of State has been directed by the President to prepare an answer to Senate resolution, dated January 6, 1916, in regard to the Mexican situation, and requesting that a statement be prepared by this department respecting the orders given to Gen. Funston for the protection of American lives and property on the Mexican border, together with any pertinent facts concerning the occupation and evacuation of Vera Cruz, Mexico, by the forces of the United States, I beg leave to advise you that the records of the department show as follows:

1. MEXICAN BORDER.

Advices having been received by the State Department indicating serious unrest and intrigue on both sides of the Mexican border, and information having been received from the Mexican Government through its ambassador in Washington that bands of revolutionists were assembling at various places along the frontier of Texas, directions were issued on November 19, 1910, to the commanding generals of the Departments of Texas and Colorado to investigate the situation on the frontier and to advise the War Department as to what precautionary measures were deemed practicable and necessary. As a result of the reports received the commanding general, Department of Texas, was authorized, under date of November 21, 1910, whenever in his judgment such action became necessary, to send troops to aid the civil authorities in enforcing the neutrality laws, and under date of November 22, 1910, he reported to the War Department that, in pursuance of the instructions before referred to, he had sent one troop of Cavalry to Del Rio and another troop to Eagle Pass, Tex.

The internal situation in Mexico having become more acute, and reports received from the State Department and the Department of Justice, as well as from officers of the Army on duty on the Mexican border, having indicated that serious disturbances were imminent, additional troops were sent to places on the border until the entire border line from the mouth of the Rio Grande to San Diego, Cal., was patrolled by United States troops in order to secure the strict enforcement of the rules of international law governing neutrality, as well as to obtain a proper observance and enforcement of the neutrality statutes of the Federal Government. To this end the proper officers were directed to use due diligence to see that such rules and laws were observed. Troops have been kept on the border for the purposes stated from that time to the present writing.

Commanders of United States troops on the Mexican border were ordered to give all possible protection to American life and property, to warn the commanders of Mexican forces along the border to refrain from any action that would endanger American life and property on the American side of the border, and to inform them that United States forces would be used to prevent action by Mexican troops endangering life and property on the American side of the line.

Sincerely, yours,

LINDLEY M. GARRISON,
Secretary of War.

[Inclosure No. 7.]

MR. ARREDONDO TO THE SECRETARY OF STATE.

AGENCIA CONFIDENCIAL DEL
GOBIERNO CONSTITUCIONALISTA DE MEXICO,
Washington, D. C., October 8, 1915.

MY DEAR MR. LANSING: Complying with your excellency's request asking me what is the attitude of the constitutionalist government in regard to the Catholic Church in Mexico, I have the honor to say that inasmuch as the reestablishment of peace within order and law is the purpose of the Government of Mr. Venustiano Carranza, to the end that all the inhabitants of Mexico without exception, whether nationals or foreigners, may equally enjoy the benefits of true justice, and hence take interest in cooperating to the support of the Government, the laws of reform, which guarantee individual freedom of worship according to everyone's conscience, shall be strictly observed. Therefore the constitutionalist government will respect everybody's life, property, and religious beliefs without other limitation than the preservation of public order and the observance of the institutions in accordance with the laws in force and the constitution of the Republic.

Hoping that I may have honored your excellency's wishes, I avail myself of this opportunity to reiterate to you the assurances of my highest consideration.

E. ARREDONDO.

His Excellency ROBERT LANSING,
Secretary of State, Washington, D. C.

[Inclosure No. 8.]

CONSUL AT CHIHUAHUA TO SECRETARY OF STATE.

AMERICAN CONSULATE,
Chihuahua, Mexico, July 31, 1915.

The honorable the SECRETARY OF STATE,
Washington, D. C.

SIR: I am in receipt of a letter dated July 28 from Mr. William J. Quigley, manager of the El Potosi Mining Co., one of the members of the Mine and Smelters Operators' Association, in which I am requested to bring the following matter to the department's attention and to request an opinion thereon, for the guidance of the parties in interest.

On July 12 the executive committee of the Mine and Smelter Operators' Association was summoned before Sr. Francisco Escudero, minister of finance in the de facto government of Gen. Villa, otherwise self-styled the conventionist government, and a request was made of them, as coming from Gen. Villa, to advance the said government the sum of $300,000, on the understanding that loans made by the various companies having membership in the association in pursuance of the request mentioned would be credited to the such companies in the payment of taxes and freight charges as these might become due in the future. The association in due time, through its secretary, advised Sr. Escudero in effect that it would be impossible for the operating mining and smelting companies to meet his demands, by reason of their foreign character, and the danger that making loans of the character proposed might be construed by adverse factions in the present civil conflict in Mexico as a hostile proceeding, in so far as they were concerned, with the result that the companies guilty of these indiscretions might lay themselves to penalties in the future.

The mining companies are now fully expecting, either in the immediate future or more remotely, action of a more vigorous kind calculated to secure the results aimed at by Sr. Escudero, and in this understanding they request the department to advise them as to what measures they should pursue to prevent the collection of forced loans that may be ordered against them.

I have the honor to be, sir, your obedient servant,

MARION LETCHER,
American Consul.

[Inclosure No. 8A.]

ACTING SECRETARY OF STATE TO CONSUL AT CHIHUAHUA.

AUGUST 11, 1915.

MARION LETCHER, Esq.,
American Consul, Chihuahua, Mexico.

SIR: The department has received your dispatch No. 658 of July 31, 1915, saying that you are in receipt of a communication from Mr. William J. Quigley, manager of the El Potosi Mining Co., one of the members of the Mine and Smelter Operators' Association, requesting suggestions relative to the veiled demands on American mining companies for loans.

The only advice which the department can give to the association at this time is that if the authorities in the city of Chihuahua shall attempt to impose a forced loan upon the members of the association, immediate notice of such attempt should be given to the department.

I am, sir, your obediant servant,

(Signed) WILBUR J. CARR,
For the Acting Secretary of State.

[Inclosure No. 8B.]

MINE AND SMELTER OPERATORS' ASSOCIATION TO SECRETARY OF STATE.

EL PASO, TEX., *August 6, 1915.*

SECRETARY OF STATE,
Washington.

Gen. Villa has demanded that accredited representatives of the mine and smelter operators of Chihuahua present themselves at the governor's palace at Chihuahua August 9 to meet Gen. Villa to receive a proposition of grave importance which will be submitted at that time. He threatens that properties which are not represented at the proposed meeting by fully empowered representatives will be closed. He stated that he would conclude with those present arrangements which would be binding on the industry although we have pointed out to Villa that the specific purpose of the meeting and the object for discussion must be known before necessary authority with proper limitation can be delegated by the principals to their representatives or agents, nevertheless he has flatly refused to state to us or even to indicate the nature of the proposition which is to be submitted. It is our unanimous opinion that Villa's purpose is to obtain money unjustly and coercively. We realize from previous instances the liklihood that coercive methods and intimidation will be applied by Villa at such a meeting. On July 12 Señor Escudero, secretary of hacienda, acting under instructions of Gen. Villa, proposed that because of the urgent needs of his government the members of this association each advance as large a sum as possible such advance to be repaid by crediting same against amounts which should become payable for mining taxes and railroad freights. Total amount required was stated as $300,000 gold. We refused to contribute on grounds that such advances would compromise us because open to construction as participation in the internal political affairs of Mexico. We are therefore apprehensive that Villa now intends to exact a forced loan or its equivalent, hence we respectfully and earnestly request that appropriate representations be made to Gen. Villa for the purpose of forestalling any demands upon us by him for a forced loan or any other illegal exaction. We believe that such representations are necessary to protect our rights and will avoid disagreeable and embarrassing complications in the present delicate situation.

Respectfully,

MINE AND SMELTER OPERATORS' ASSOCIATION,
El Paso, Tex.

[Inclosure No. 8C.]

GEORGE C. CAROTHERS TO THE SECRETARY OF STATE.

El Paso, Tex.,
August 12, 1915.

Secretary of State, *Washington:*

In conference between Gen. Scott and myself accompanied by a committee representing the mining men of Chihuahua and Gen. Villa, we convinced Villa of the impracticability of enforcing his proposed decrees as against the mining men and he definitely agreed with us to let the mining men alone and to discuss with them the problem of keeping the railroads open, the mining men requesting him to protect their stock of goods which it is necessary for them to import and Villa offered absolute protection and an escort of all goods ordered to the mines and to enforce his military commanders to abstain from confiscating their stocks of merchandise. At this meeting, the mining men voluntarily presented Gen. Villa with 1,000 tons of coal to assist in the operation of the railroad. It is both Gen. Scott's and my opinion that we should abstain from making further representations to Villa for several days so as not to tire him. As soon as expedient I will take up the Tlahualilo and other cases with him.

Geo. C. Carothers.

[Inclosure No. 9.]

REAR ADMIRAL FLETCHER TO THE SECRETARY OF THE NAVY.

U. S. S. "Florida,"
Vera Cruz, Mexico, April 9, 1914.

Secretary Navy, *Washington:*

Mayo reports, 5 p. m. Thursday:

> This forenoon Mexican soldiers arrested paymaster and whale boat's crew of *Dolphin*, part of whom were in boat with flag flying, marched them two blocks through streets, then back to boat, and there released them. Gen. Zaragoza expressed regret verbally. In view of publicity of event I have called for formal disavowal and apology (and) punishment of officer in charge Mexican squad, and salute to American flag within 24 hours from 6 p. m., Thursday.
>
> Mayo.

Utah left for Tampico 7 p. m., Thursday.

Fletcher.

[Inclosure No. 9A.]

SECRETARY OF THE NAVY TO SECRETARY OF STATE.

Navy Department,
Washington, January 19, 1916.

Sir: I have the honor to acknowledge the receipt of your letter of January 17, 1916, in which you inform this department that the President has directed the Department of State to prepare a reply to Senate resolution dated January 6, 1916, requesting certain documents, letters, reports, orders, and so forth, in regard to the Mexican situation, in connection with which you request that a statement be prepared for you embodying the pertinent facts concerning the occupation of Vera Cruz by our naval forces. It is noted that you have requested the Secretary of War to have a similar statement prepared.

In compliance with your request, I have the honor to inform you that on the night of April 20, 1914, in obedience to orders from the President of the United States, Admiral Fletcher, commanding the naval forces then stationed off Vera Cruz, Mexico, was directed to seize and hold the customhouse at Vera Cruz and not to permit war supplies to be delivered to the Huerta government or to any other party. These orders were received by Admiral Fletcher at 8 a. m on April 21. The American consul was immediately notified and directed to send all foreigners aboard the Ward Line steamer *Mexico*, then in the harbor of Vera Cruz. The Mexican military commandant was notified of the intention of our forces to take charge of the customhouse. At 11.30 a. m. on April 21 a landing force from the U. S. S. *Florida*, *Utah*, and *Prairie*, totaling 787 officers and men, of which 502 were marines, had been landed and had taken charge of the customhouse, cable station, railway station, and post office at Vera Cruz. No resistance was encountered on the initial landing, but about noon the Mexican forces began firing on the American troops, so that in order to hold the customhouse it became necessary to occupy the city of Vera Cruz. Reinforcements arrived on the night of the 21st instant, and by April 24 complete control of the city was gained by the American forces. On April 24 Admiral Fletcher declared martial law in the city of Vera Cruz. Army transports arrived at Vera Cruz on April 28, and after conference with Gen. Funston, Admiral Fletcher established a civil government under martial law.

At 8 a. m. on April 30, the forces of the Army were landed from transports, and at 2 p. m. of that date control of the city was taken over by the Army. The naval forces, with the exception of the marines, were withdrawn to the vessels in the harbor, and the marines were assigned to duty with the Army.

Copies of all messages in reference to the occupation of Vera Cruz were sent to your department.

Sincerely, yours,

JOSEPHUS DANIELS.

The honorable the SECRETARY OF STATE.

[Inclosure No. 9B.]

SECRETARY OF WAR TO SECRETARY OF STATE.

WAR DEPARTMENT,
Washington, January 26, 1916.

The honorable the SECRETARY OF STATE.

MY DEAR MR. SECRETARY: Referring further to your letter of January 17, 1916, stating that the Department of State has been directed by the President to prepare an answer to Senate resolution dated January 6, 1916, in regard to the Mexican situation, and requesting that a statement be prepared by this department respecting the orders given to Gen. Funston for the protection of American lives and property on the Mexican border, together with any pertinent facts concerning the occupation and evacuation of Vera Cruz, Mexico, by the forces of the United States, I beg leave to advise you that the records of the department show as follows:

1. MEXICAN BORDER.

* * * * * * *

2. OCCUPATION AND EVACUATION OF VERA CRUZ, MEXICO.

Vera Cruz, Mexico, having been, by direction of the President, occupied by the naval forces of the United States, instructions were issued on April 23, 1914, to the commanding general, second division, Texas City, Tex., to cause the reinforced Fifth Brigade to embark as soon as practicable on the Army transports *Sumner*, *McClellan*, *Kilpatrick*, and *Meade*, and to proceed at once to Vera Cruz.

On April 24, 1914, the four regiments of Infantry of the Fifth Brigade, together with Company E, Second Battalion of Engineers, and Field Hospital No. 3, a total of 182 officers and 3,047 enlisted men, sailed from Galveston, Tex., under the command of Brig. Gen. Funston, United States Army, and arrived in Vera Cruz Harbor on April 28, 1914, and disembarked. On April 26, 1914, the First Battalion of the Fourth Field Artillery sailed from Texas City for Vera Cruz on the chartered transport *Satilla* to join Gen. Funston's command.

On April 26, 1914, orders were issued to Gen. Funston, in compliance with instructions received from the President, upon arrival at Vera Cruz, to relieve the Navy of its duties ashore incident to the occupation and control of the city of Vera Cruz and its environs. Gen. Funston was advised on the same date that pursuant to the orders of the President the First Brigade, United States Marine Corps, would be placed under his command for service with the Army.

On April 29, 1914, the headquarters, band, and detachment of the First Battalion, Fourth Field Artillery, and Troops I and K, Sixth Cavalry, sailed from Galveston for Vera Cruz on the chartered transport *San Marcos;* and on April 30, 1914, Company D, Signal Corps, sailed for Vera Cruz on the naval transport *Esperanza.*

Gen. Funston reported taking over from the Navy the command at Vera Cruz on the afternoon of April 30, 1914.

A military government was established by General Orders, No. 3, Headquarters, United States Expeditionary Forces, May 2, 1914. This order set forth the principle that the government established thereby would continue the system to which the people of Vera Cruz were accustomed, in so far as consistent with military control, and from that date until the evacuation the Army continued to administer the civil affairs of the city.

The executive branches of the military government established by the general order cited above consisted of the following:

The office of the provost marshal general.

The office of the treasurer.

The customs service, including the lighthouse service, to which was later added the pilot service.

The United States mail agency and the general post office.

Each of these branches was placed in charge of an officer of the Army, except the customs service, which was administered by Commander H. O. Stickney, United States Navy, as administrator of customs and captain of the port, and the United States mail agency and the general post office, which were administered by Mr. H. M. Robinson, an official of the Post Office Department, sent to Vera Cruz for the purpose.

Prior to the evacuation, instructions were issued to Gen. Funston to bring with him to the United States all funds in his possession from whatever source derived, both United States funds and Mexican custom receipts and taxes. He was also instructed to bring with him all the records, accounts, and money papers necessary to establish the integrity and accuracy of his financial and other administration, and to make an inventory of all goods in the customhouse, keeping the original of such inventory and leaving a copy with the American consul at Vera Cruz. Gen. Funston was also authorized to leave with the latter such copies of accounts or other data as might be required by whomsoever might continue the government of the city.

On November 14, 1914, as the result of an announcement issued by the State Department on November 13, 1914, Gen. Funston was directed to make all preparations to leave Vera Cruz Monday, November 23, 1914.

On November 20, 1914, Gen. Funston was instructed to evacuate Vera Cruz on the date specified above, viz, Monday, November 23, 1914.

On November 23, 1914, Gen. Funston advised the department that he would embark his command at 2 o'clock on the afternoon of that day on the transports *Sumner*, *Kilpatrick*, *Cristobal*, *McClellan*, *Kansan*, *Antilla*, *City of Memphis*, *Denver*, and *San Marcos*.

On November 26, 1914, Gen. Funston reported the arrival of his command at Galveston, Tex.

Subsequently to his arrival at Galveston, Gen. Funston reported that the Mexican funds brought with him to the United States, together with the money papers pertaining thereto, had been placed for safe-keeping in the strong room of the First National Bank at Galveston, storage room for all other records of the military government of Vera Cruz having been provided by the depot quartermaster at Galveston. In this connection Gen. Funston suggested the advisability of sending the Mexican funds and the records of the treasurer's office to the subtreasury at New Orleans, La., for safe-keeping. Upon receipt of that suggestion the department communicated at once with the Treasury Department with a view to ascertaining as to whether it would be practicable to place these funds and records in the subtreasury at New Orleans as suggested, and the Treasury Department having signified its willingness to have the funds and records so transferred, Maj. Blanton Winship, judge advocate, United States Army, who had immediate charge of these funds and records, was advised accordingly.

On January 1, 1915, Maj. Winship reported that he had on that date shipped to the subtreasury at New Orleans, La., one field safe, sealed, containing 1,539,051.20 Mexican pesos, and the books and records pertaining to the military treasurer's office, together with one sealed wooden box containing 1,065,000 Mexican pesos, or a net total of 2,604,051.20 pesos.

On January 12, 1915, the department advised the Secretary of State of the transfer of the Mexican funds and records, as set forth above.

Sincerely, yours,

LINDLEY M. GARRISON,
Secretary of War.

[Inclosure No. 10.]

SECRETARY OF STATE TO THE BRAZILIAN MINISTER IN MEXICO.

DEPARTMENT OF STATE,
Washington, September 22, 1914.

The BRAZILIAN MINISTER, *Mexico:*

Certain rumors have reached this Government as to actions which may possibly be taken by the authorities at Vera Cruz after its evacuation, namely:

The exaction of further payments of duties on merchandise which has passed through the customhouse since American occupation and on which the duties have been paid. The exaction of further payments of local and municipal taxes paid since American occupation, such as license fees, property taxes, street taxes, etc. The imposition of fines or other penalties upon Mexican citizens, who have been employed in connection with the civil government of the city since American occupation.

You are requested to call these subjects to the attention of Gen. Carranza and state to him that this Government, while it does not give credence to these rumors, as such actions would be manifestly unjust, considers that to avoid possible improper conduct by subordinates and to allay apprehension at Vera Cruz it is hoped that Gen. Carranza will give a specific assurance in regard to each subject that the rumored action will not be permitted.

You will please intimate to Gen. Carranza the advisability of giving these assurances in definite form and as soon as possible in order that there may be no delay in carrying out the proposed evacuation of Vera Cruz by the American forces.

You will also please call to Gen. Carranza's attention the fact that there is in Vera Cruz a large number of so-called refugees, among them many priests and nuns, who came there because of apprehension as to their personal safety while civil strife prevailed in Mexico. This Government earnestly hopes that Gen. Carranza will be willing to announce that the Mexican central authorities will not countenance or permit any wanton mistreatment of these people, but will assure them that protection which an enlightened and orderly Government affords to individuals within its jurisdiction.

ROBERT LANSING,
Acting Secretary of State.

[Inclosure No. 11.]

BRAZILIAN MINISTER IN MEXICO TO THE SECRETARY OF STATE.

MEXICO CITY, MEXICO,
November 10, 1914.

SECRETARY OF STATE,
Washington, D. C.:

November 10—11 a.m.—Acting Secretary for Foreign Relations, who is now in Cordoba, State of Vera Cruz, with Carranza, invited me this morning to have a telegraphic conference over the wire of the foreign office, during which he transmitted the following note, with request that same be transcribed to you at once:

CORDOBA, *November 10, 1914.*

MR. MINISTER: Referring to your excellency's note, dated the 2d instant, relative to the evacuation of Vera Cruz by forces of the United States of America, by order of the first chief of the constitutionalist army in charge of the executive of the union, I have the honor to inform your excellency as follows: The chamber of commerce and the owners of real estate at the port of Vera Cruz, as well as the employees who have served in several capacities in the administration of the port during American occupation, have addressed themselves to the first chief of the constitutionalist army in charge of the executive, through the governor and military commander of the State, stating that the taxpayers will be satisfied with such resolutions of the National Government as may be later passed by it in reference to the collection of fiscal dues as have been paid to the American authorities who have been in exercise in the port; also, that the employees are disposed to submit themselves to such disposition as the Mexican authorities may see fit. The first chief of the constitutionalist army in charge of the executive is now of the attitude assumed by the chamber of commerce, the owners of the city real estate, and the above-mentioned employees, and of his considering so fit for the welfare of national interests, has been pleased to issue. under date of the 8th and 9th instant, the following decree:

"Venustiano Carranza, first chief of the constitutional army in charge of the executive power of the United States of Mexico, using of the extraordinary authority in me vested, and considering that the chamber of commerce and the majority of owners and administrators of real estate at the port of Vera Cruz have addressed the executive in my charge, renouncing the protection asked for in their behalf by the United States Government before expecting the evacuation of Vera Cruz, stating categorically that they will abide by all the just decisions which the Mexican Government may render in reference to the collection of fiscal dues previously collected by foreign authorities, and because I consider it convenient to the national interests, I have seen fit to decree as follows:

"'Article 1. On the occupation of Vera Cruz by the Mexican authorities no exaction will be made from the inhabitants of the port for the payment of taxes or any other contributions of Federal character which may have previously been paid to the foreign authorities which temporarily occupied the port.

"'Article 2. In order to be entitled to the privilege granted by this decree it will be sufficient for interested persons to present to the tax collector's office the receipts showing that such payments were made to the authorities established during the occupation of Vera Cruz by the American forces.'

"And I have to inform you of the above for its immediate publication and due observance.

"V. CARRANZA."

CONSTITUTION AND REFORMS,
General Headquarters at Cordoba, November 8, 1914.

The second decree reads as follows:

Venustiano Carranza, first chief of the constitutionalist army in charge of the executive power of the United States of Mexico, by virtue of the extraordinary faculties in me vested, and considering, firstly, the Mexican and foreign employees who have served the authorities established in Vera Cruz during its occupation by American forces have addressed this first office of the constitutionalist army through the governor and military commander of this State, stating of their own accord, that they only recognize the national government as entitled to resolve the questions of interior order such as refer to the punishment or partion of persons who, as themselves, have served the foreign authorities; secondly, that they expressly declared that they will be agreeable to the decisions that the national government may render in regard to them in order that they may not be considered as an obstacle for the eminently patriotic act of obtaining a speedy evacuation of Vera Cruz; and, thirdly, that the spontaneous and patriotic attitude of such employees has made them deserving of an amnesty for such penalties as they might have incurred, in I have seen fit to issue the following decree:

"General amnesty is hereby granted to all persons who may have served as employees in the several branches of the public administration that in a de facto manner have exercised control temporarily during the occupation of Vera Cruz by American forces."

And I communicate the above to you so that you may in turn make it known to the federal and local authorities of the Republic for its immediate publication and strict observance.

V. CARRANZA.

CONSTITUTION AND REFORMS,
General Headquarters at Cordoba, November 9, 1914.

Gen. Candido Aguilar, as military governor of the State of Vera Cruz, has to-day issued the following decree:

The government in my charge is obligated to dispense its protection to such persons as may have paid the fiscal dues in the port of Vera Cruz to the American authorities, and that such protection should be made extensive to the new collection of such dues a second time as have been paid, it being so considered in equity, and considering that a large majority of the residents of said port recognize that the Mexican Government is the only one which ought to protect them, they place themselves under its protection as an act of pure patriotism. For the above considerations, I have seen fit to decree as follows:

"Article 1. Upon the evacuation of Vera Cruz by the American forces and its occupation by the Mexican authorities, no exaction will be made from the inhabitants of the port for either municipal or state dues such as may have been previously paid by them to the foreign authorities who occupied the port.

"Article 2. In order to be able to enjoy the benefits granted by this decree, it will be sufficient to present to the respective collectors' offices the receipts showing the payments made to the functionaries of the administration which had control of affairs during American occupation."

Therefore I order that the above be published, circulated, and duly complied with.

Issued at Cordoba on the 10th day of November, 1914.

GEN. C. AGUILAR.
J. DOMINGUEZ,
Assistant Secretary of the Government.

In view of the fact that the Mexican Government has issued the decrees which I have had the honor to transcribe to you above, the causes pointed out by the Government of the United States of America for the continued occupation of the port of Vera Cruz have disappeared. In consequence, the first chief of the constitutionalist army in charge of the executive of the union, trusts that, as offered in your note of November 2, the Government of the United States of America will not delay any longer the evacuation of Vera Cruz and will proceed at once to evacuate the port.

I protest to you, Mr. Minister, the assurances of my highest consideration.

ISIDRO FABELA.

CONSTITUTION AND REFORMS.

CARDOSO DE OLIVEIRA.

[Inclosure No. 12.]

LIST OF AMERICANS KILLED IN MEXICO DURING THE YEARS 1913, 1914, AND 1915.

The list of Americans killed in Mexico during the period mentioned above is subdivided into five classes, as follows:

Class 1.—Americans killed in Mexico from causes that can be attributed directly to the revolutionary disturbances.

Class 2.—Americans who have disappeared in Mexico and who were probably killed from causes that can be attributed directly to the revolutionary disturbances.

Class 3.—Americans killed, apparently through motives of robbery, by bandits or others (not including those killed by Indians).

Class 4.—Americans killed by Indians, apparently through motives of robbery or revenge.

Class 5.—Americans killed in Mexico during the period mentioned from miscellaneous causes and causes not definitely stated.

AMERICANS KILLED IN MEXICO FROM CAUSES THAT CAN BE ATTRIBUTED DIRECTLY TO THE REVOLUTIONARY DISTURBANCES.

CLASS 1—1913.

John B. Alamia, May 13: Hanged as spy and for other alleged crimes, at Rio Bravo, State of Tamaulipas.

John Henry Thomas, August 13: Assassinated by federal soldiers at Madera, State of Chihuahua. Murderers executed.

Edmund Hayes, August 15: Assassinated by same band of soldiers as Thomas, above.

William C. Robertson, September 10: Murdered by revolutionists at El Lobo, Mazatlan district, State of Sinaloa, for failing to show his passport promptly and resisting while being disarmed.

Porfirio Laurel, November 1: Arrested at Nuevo Laredo charged with smuggling ammunition to revolutionists. Stabbed to death with bayonet. Appears to have been killed before being brought to trial.

Charles Seggerson, November 15: Appears to have been accidentally shot in the back when Villa captured Juarez.

Luciano Martinez, December 6: Reported to have been about 16 years old when killed. He enlisted in the rebel ranks in the Tampico district. Representations were made to the authorities to release him, but no definite action appears to have been taken by them in the matter, and Martinez was killed in battle.

Incarnacion Sanchez, December 31: Said to have been murdered by Mexican federal officials at Mexicali.

Jose Valencia, December 31: Murdered at the same time as Sanchez, above.

CLASS 1—1914.

Frank Smith, January 26: Killed by federals in the vicinity of Tampico. No motive known. Federal lieutenant and sergeant were court-martialed and executed for this crime.

Guy S. Sawyer, April —, 1914: Wounded during attack on Monterey by constitutionalists and died from effects.

Dr. E. E. Kelly, August 27: Shot in the back and killed by Indian soldiers at Navajoa, Hermosillo district, State of Sonora. No motive known.

F. C. Chapel, November 16: Shot and killed by Mexican soldier at Nogales, State of Sonora. Soldier was on sentry duty and had challenged Chapel. No reason was given as to why he was challenged. The soldier was placed under arrest, but was afterwards released.

CLASS 1—1915.

John B. McManus, March 11: Shot and killed by Zapatistas in Mexico City. Victim was defending his home against assault, due to revenge. Palafox, Villista-Zapatista Conventionista Acting Secretary of Foreign Affairs, expressed deep regret for the murder. Widow was paid 120,000 pesos, or about $20,000 gold.

Isaac R. Ely, May 15: Accidentally shot by Villistas while they were attacking the Ebano pump station, Tampico district.

J. N. Bennett, May 26: Shot by Villistas and killed while in launch with Carranzista soldiers, on the Panuco River, off Tampico.

A. Martinette, About June 1: Killed at Cumpas by Maytorena (Villista) soldiers under Gen. Trujillo.

Edgar Bean, November 20: Reported to have been murdered at Puerto Citos, a suburb of Cananea, State of Sonora. It was reported that Bean was an engineer, and that when his engine ran off the track Col. Beltran, of the Villista forces, became enraged and shot him.

Americans killed in Mexico from causes that can be attributed directly to the revolutionary disturbances (1913, 1914, 1915), 18.

AMERICANS WHO HAVE DISAPPEARED IN MEXICO AND WHO HAVE PROBABLY BEEN KILLED FROM CAUSES THAT CAN BE ATTRIBUTED DIRECTLY TO THE REVOLUTIONARY DISTURBANCES (COVERS THE PERIOD FROM THE FIRST OF 1913 TO AND INCLUDING 1915).

CLASS 2—1914.

Gustav Bauch, February 15: Arrested as spy in Ciudad Juarez by Villistas. Disappeared between Ciudad Juarez and Chihuahua. Special Representative Carothers stated that he thought Bauch was killed by order of Gen. Villa.

Harry Compton, February 15: Reported sentenced to be executed. Investigations at Chihuahua, Ciudad Juarez, and Ojinaga revealed no trace of him.

Charles Milton, March 26: Rumored murdered by band of Huerta followers south of Cananea, State of Sonora.

Juan Coy, April 6: Disappeared when Monclova was being attacked; may have been killed in attack; no trace of Coy ever found.

CLASS 2—1915.

Charles S. Dalrymple, February 12: Seen in prison at Victoria, State of Tamaulipas. Stated to passerby that he had just been transferred from Chihuahua, where he had been held incomunicado for a year. No trace of him ever found after being seen in Victoria.

Peter Scott, about June 1: Rumored killed at Navajoa, near Nogales, State of Sonora. No details and no further report.

Total number of Americans who disappeared in Mexico in the period from 1913 to 1915, inclusive, 6.

AMERICANS KILLED IN MEXICO, APPARENTLY THROUGH MOTIVES OF ROBBERY, BY BANDITS OR OTHERS (NOT INCLUDING THOSE KILLED BY INDIANS—SHOWN IN A SEPARATE LIST).

CLASS 3—1913.

Boris Gorow, February 20: Killed by bandits in the Territory of Tepic.

Mrs. Charles E. Ross, August 28: Also known as Kitty Hines. Murdered by four Mexicans whom she surprised while they were robbing her home at Chihuahua.

Maurice P. Root, September 2: Stabbed to death while resisting robbery at Mazatlan. Murderer never brought to justice.

CLASS 3—1914.

Clemente Vergarra, February 13: Seized near Piedras Negras. The reason for his seizure was not stated. It was reported that although Vergarra's release was ordered he was afterwards killed.

Weston Burwell, about April 23: Killed at Ozuluama by orders of a federal officer, Col. Quirol. Motive supposed to have been robbery. Quirol was afterwards arrested in the United States and deported to Habana, Cuba.

C. B. Hoadley, May 10: Reported killed at the same time certain British subjects were killed or wounded in raids on mines in the Guadalajara district. Motive probably robbery.

CLASS 3—1915.

John Glenn Parmenter, May 26: Murdered by bandits after being robbed near Guadalajara. Some of the bandits were killed by pursuing soldiers.

Edward Freeman Welles, August 13: Killed by bandits when train was attacked between Santa Lucrecia and Vera Cruz; bandits not apprehended.

James Jacoby, August 21: Murdered at Chihuahua City; motive probably robbery. No results from investigation.

James E. Taylor, September 16: Died as a result of being shot through the stomach while protecting his home from robbery near Panuco, State of Vera Cruz.

Total number of Americans killed in Mexico in 1913, 1914, and 1915, apparently through motives of robbery, by bandits or others (not including those killed by Indians shown in a separate list), 10.

AMERICANS KILLED IN MEXICO BY INDIANS, APPARENTLY THROUGH MOTIVES OF ROBBERY OR REVENGE.

CLASS 4—1913.

Edward Gregory Dexter, January 14: Murdered by Indians at San Juan Taviche, near Oaxaca. Four men arrested for the crime.

CLASS 4—1914.

Tom Farrell, June 26: Killed from ambush by either Yaqui Indians or Mexicans, between San Javier and La Colorado, Hermosillo district.

O. A. L. Squires, August 6: Killed by Yaquis at La Colorado, Hermosillo district, while trying to prevent robbery.

John Williams, August 10: Killed near Vasitos, State of Sonora, by Mexicans or Yaquis.

CLASS 4—1915.

Eugene Camera, February 25: Murdered by Yaquis at Lencho Station, Guaymas district, State of Sonora.

C. M. Brown, April 27: Shot and killed by Mayo Indians at Ahome, Mazatlan district, State of Sinaloa.

John P. Wilson, May 11: Killed by Yaqui Indians at Esperanza, State of Sonora.

J. J. Donovan, May 11: Killed by same band of Yaquis.

Joseph Tays, September 5: Murdered by Indians near San Blas, State of Sinaloa.

W. A. Fay, May 11: Killed by the same band of Yaquis that murdered Wilson and Donovan above.

Charles Goldsborough, November 4: Killed along with two companions by Indians in the district of Fuerte, State of Sinaloa. Identity of companions not known; evidently Mexicans.

W. S. Windham, November 6: Murdered by Indians at Quimichis ranch, Territory of Tepic, through motive of revenge.

Total number of Americans killed by Indians apparently through motives of robbery or revenge, 1913, 1914, and 1915, 12.

AMERICANS KILLED IN MEXICO DURING THE REVOLUTIONARY DISTURBANCES IN THE YEARS 1913, 1914, AND 1915 FROM MISCELLANEOUS CAUSES AND FROM CAUSES NOT DEFINITELY STATED.

CLASS 5—1913.

Frank Horace, March —: Murdered by Mexican citizen at Coalcoman, State of Michoacan. Murderer arrested but escaped. Later reported to have been enlisted in the army.

Walter Van Den Bosch, March 17: Murdered by Mexican civilian at Duran Two men arrested.

James O. Lawrence, March 22: Murdered by Mexican civilian at Tampico.

Albert H. Lawrence, March 31: Shot and killed by Mexican at Tampico. Assailant sentenced, then released; later shot by Mexican army officer.

William W. Corrie, April 1: Was attached to the U. S. S. *California*. Reported murdered by chief of police of Guayamas.

John C. Kleesow, April 1: Attached to the U. S. S. *California*. Reported murdered at the same time as Corrie in the same manner.

William Protexter, May 12: Shot by two Mexican civilians at La Junta, Chihuahua. One of the Mexicans was shot and killed by Protexter. Protexter died as a result of his wound.

Henry Knox Burton, July 13: Murdered by Constitutionalist soldier at Santa Rosalia. No motive known. Murderer was arrested, but previous to attack on town by enemy was released.

Victor W. East, September 16: Murdered in the State of Campeche. Murderer escaped.

John Edson, November: Murdered with machetes by four men at El Venado, Guadalajara.

Mrs. John Edson, November: Reported fatally wounded at the same time.

CLASS 5—1914.

Peder Pederson, January 2: Murdered in Canton Ozuluama, State of Vera Cruz.

February 4: Bandits ran some burning stock cars into the Cumbre Tunnel, in the State of Chihuahua, and a passenger train collided with them. The following Americans are known to have been killed: M. J. Gilmartin, Bernard Schofield, John E. Webster, E. J. McCutcheon, J. I. Morris, Lee Williams, Thomas Kelly, and H. F. Maderis.

E. M. Harmon, February 22: Murdered at Madera, State of Chihuahua.

Oscar Allen, March 15: Murdered at Pearson, Chihuahua.

James Crawford, May 14: Murdered near Panuco, State of Vera Cruz.

Richard Urban, May 20: Murdered west of Nacozari, State of Sonora. May possibly have been murdered by partner. No further report.

Edward L. Nixon, September 21: Stabbed to death at Tampico by six Mexicans. Murderers were placed under arrest. The American vice consul reported in April, 1915, that they would be tried upon the establishment of a civil court.

Herbert Atwater, December 29: Died from being stabbed by a Mexican civilian at San Jeronimo, State of Vera Cruz.

CLASS 5—1915.

February—Body of a man, supposed to be that of Walter McIntosh, found at Tampico; presumably murdered. No clues.

Reyes Grijalva, April 25: Shot by a Mexican policeman at Nogales while trying to escape arrest. The policeman was placed under arrest, and on May 10 Maytorena the Villista governor) promised that the policeman would be tried.

W. M. Byrd, jr., April 27: Executed near Tampico. He was reported to have been guilty of stealing cattle and changing brands, and it was stated that he was arrested on complaint of Americans. He appears to have been summarily executed by Gen. Urbina without the formality of a trial.

Gilbert Teanhl, June 16: Killed at Charcas, State of San Luis Potosi, while trying to stop a quarrel.

Total number of Americans killed in Mexico during the revolutionary disturbances in the years 1913, 1914, and 1915 from miscellaneous causes and from causes not definitely stated, 30.

Grand total of Americans killed in Mexico during the revolutionary disturbances in the years 1913, 1914, and 1915:

(1) Americans killed in Mexico from causes that can be attributed directly to the revolutionary disturbances	18
(2) Americans who have disappeared in Mexico in 1913, 1914, and 1915 and who were probably killed from causes that can be attributed directly to the revolutionary disturbances	6
(3) Americans killed, apparently through motives of robbery or revenge (not including those killed by Indians)	10
(4) Americans killed by Indians, apparently through motives of robbery or revenge	12
(5) Americans killed in Mexico during the revolutionary disturbances in the years 1913, 1914, and 1915 from miscellaneous causes and causes not definitely stated	30
Grand total of Americans killed during the period mentioned	76

In this connection it may be stated that when the murder of American citizens was reported the Department of State made representations, through its representatives, for the apprehension and punishment of the assailants; and in some instances the department's representatives made such representations to the appropriate officials on their own initiative.

Where there has been no definite information as to the apprehension of those reported to be guilty of outrages on American citizens, resulting in their death, a notation to that effect has been omitted from these lists for the sake of brevity.

[Inclosure No. 12A.]

AMERICANS KILLED IN MEXICO IN 1910, 1911, AND 1912.

1910.

James M. Reid, November 20, Mexico City: Shot and killed by a Mexican policeman. Murderer was sentenced to nine years' imprisonment.

The following Americans were reported killed in the Republic of Mexico in 1910 from miscellaneous criminal causes not connected directly with the revolutionary disturbances: Cummings, Green, Hughes, Lockart, McLaughlin, Maxwell, Parson, Pennington, Randall.

1911.

William E. Fowler, March 9, Tuxpam, State of Vera Cruz: Murdered by a Mexican peon. Murdered man was a naturalized American citizen and a Canadian by birth.

George Critchfield, April 7, Ranche Zapatal, near Tuxpam: Died from gunshot wound. Supposed murderer was placed on trial. No definite report of the outcome of the trial was made at the time.

Roy M. Godman, April 30, 25 miles from Acapulco: Was murdered by a band of 70 or 80 insurgents.

Samuel Hidy, May 18, Los Platanos Colony, San Luis Potosi: Motive apparently robbery. Mexican foreign office informed the American Embassy that everything possible was being done to apprehend the murderers.

Elbert Pope, May or June, apparently in Lower California: Led a raid from California into Lower California.

John G. D. Carroll, June 11, Alamo, Lower California: Reported murdered by Mexican federal auxiliary soldiers. Carroll had taken out his first papers to become a Mexican citizen.

Dr. Allan L. Foster, June 11, Alamo, Lower California: Killed at the same time as Carroll.

Patrick Glennon, June 11, Alamo, Lower California: Killed at the same time as Carroll and Foster. Glennon was a naturalized American of Irish birth.

Milton K. Willis, July 17, Calexico or Mexicali, Lower California: Was shot in a quarrel with another man. His assailant is said to have been related to a local judge. Assailant was imprisoned and later released on the ground of self-defense. No further report at the time.

Oscar M. Pelham, about September 14, Santa Gertrudis mine, near City of Pachuca: Conflicting statements as to how murder occurred. (American citizenship in doubt. May have been a Canadian.)

The following Americans were reported killed in the Republic of Mexico in 1911 from miscellaneous criminal causes not connected directly with the revolutionary disturbances: Berthold, Bishop, Clark, Gillett, Jones, Lawton, Lesher, McClelland, Royer, Shope, Swazay, Urby.

1912.

W. H. Waite, April 4, Ochotal, State of Vera Cruz: Reported murdered by one or more employees on his plantation. Consul Haskell at Salina Cruz reported the shooting of two persons supposed to be guilty of this crime.

Thomas A. J. Fountain, April 9, apparently in district surrounding the City of Chihuahua: Reported murdered by rebels under Orozco and under the immediate command of Salazar.

Henry Crumley (also reported Cromley), July 21, Purandiro, near Michoacan: Killed by a servant or in a fight over a woman (two versions of Crumley's death).

Rowan Ayers. about August 14, Patzcuaro, State of Michoacan: Reported murdered through motives of robbery and revenge. The Mexican Embassy in Washington and the American Embassy at Mexico City reported that the murderer had been caught and would be executed.

John J. Brooks, November 17, Chuichupa, Chihuahua: Reported killed by rebels while resisting robbery.

Ernest Spillsbury, December 31, Pachuca: Apparently murdered by a Mexican civilian.

The following Americans were reported killed in the Republic of Mexico in 1912, from miscellaneous criminal causes not connected directly with the revolutionary disturbances: Adams, Buckerdike, Crawford, Haigler, Harvey, Meyer, Reterman, Stevens, Thompson.

Total number of Americans killed in Mexico in 1910, as shown above	10
In 1911	22
In 1912	15
Grand total	47

[Inclosure No. 12B.]

AMERICANS REPORTED KILLED IN UNITED STATES TERRITORY

Americans reported killed in United States territory as a result of the Mexican border troubles during the years 1913, 1914, and 1915:

Special deputy, about September 13, 1913, Corrizo Springs, Tex.: Consular report stated that the deputy was killed in a conflict between a sheriff's posse and smugglers. Posse was assisting United States soldiers.

Four American citizens were reported killed in Naco, Ariz., in 1914. Names and dates not stated. They were presumably killed from shots fired across the border from the Mexican side, as a result of fighting between Mexican factions.

1915.

Juan Balamia, May 13: Executed by orders of Gen. Blanco, after court-martial, at Rio Bravo, in the Matamoros consular district.

Texas ranger (name not stated), May 27, near Pelares, Mexico: Killed on American territory by Mexican bandits.

American river guard, May 27, near Pelares, Mexico: Killed at same time as Texas ranger above.

Dr. E. S. McCain, October 19, near Brownsville, Tex.: Mortally wounded by Mexicans in train hold-up; died October 19. Raiding party.

American trainman (name not stated), December 21: Reported by collector of customs at El Paso, Tex., as having been killed while standing on a freight car. The report stated that the shot was fired by an irresponsible Mexican soldier during recent trouble in Juarez connected with turning over of garrison to Carranza forces. An unverified report stated that soldier firing shot was immediately afterwards killed.

George A. Diepert, December 21: Reported killed by shots fired across the border during a battle at Juarez.

American (name and date not reported): Killed at Douglas, Ariz.

Bernard Boley, July 22: Reported by the consul at Matamoros as having been killed near Raymondville.

Bonefacio Benavides, July 31: Reported by the consul at Matamoros as having been killed near Los Indios.

A. L. Austin, August 7: Killed by bandits at his home. Reported by the consul at Matamoros.

Charles Austin, August 7: Son of A. L. Austin, killed at the same time. Reported by the American consul at Matamoros.

Charles Jensen (no date stated): Was a watchman at Lyford Gin. Reported by the American consul at Matamoros.

R. E. Donaldson, September 2: Reported by the consul at Matamoros as having been murdered at Fresnos Tract.

J. T. Smith, September 2: Same as above.

Engineer Kendall, October 19: Killed when bandits wrecked and looted a train 6 miles from Brownsville. Reported by the American consul at Matamoros.

Total number of Americans reported killed as above, 20.

[Inclosure No. 12C.]

AMERICAN SOLDIERS KILLED IN AMERICAN TERRITORY.

American soldiers killed in American territory on account of Mexican border troubles:

Two soldiers killed at Naco, Ariz., August, 1914.

1915.

William S. Warwick, January 29: Killed by shots fired across the border during a battle at Juarez, Mexico.

George R. Maguire, private, August 2, Alice Road, Tex.: Killed in a skirmish with Mexican bandits.

Leo C. Windhaus, private, August 10, Palm Garden, Mercedes, Tex.: Killed in a skirmish with Mexican bandits. Raiding party.

John Willman, corporal, August 16, Progresso Ferry, Tex.: Killed by fire from band of Mexicans from Mexican side.

Anthony Kraft, private, September 13, Los Indios Ranch, Tex.: Killed in a skirmish with Mexican bandits. Raiding party.

——— Forney, private, September 13, Los Indios Ranch, Tex.: Killed in a skirmish with Mexican bandits' raiding party.

Henry Stubblefield, private, September 24, Progresso Ferry, Tex.: Killed in attack on Progresso post office by Mexican raiders.

Albert T. McBee, corporal, October 18, on train near Brownsville, Tex.: Killed by Mexican bandits' raiding party during holdup.

Ernest Shaffer, sergeant, October 20, Ojo de Agua, Tex.: Killed by Mexican raiding party.

Martin F. Joyce, private, October 20, Ojo de Agua, Tex.: Killed by Mexican raiding party.

Herbert McConnell, private, October 20, Ojo de Agua, Tex.: Killed by Mexican raiding party.

——— ——— (name not yet reported to War Department), November 1, Douglas, Ariz.: Killed in trench by firing across border during attack on Agua Prieta.

Harry J. Jones, private, November 1 or 2, Douglas, Ariz.: Killed by firing across border during attack on Agua Prieta.

Stephen Littles, private, November 26, Nogales, Ariz.: Killed by Carranza men through mistaking the company for party of Villistas.

Total number of American soldiers killed as above, 16.

[Inclosure No. 12D.]

MEXICANS REPORTED KILLED IN AMERICAN TERRITORY.

Mexicans reported killed in American territory as a result of border troubles other than those resulting from firing across the international line during engagements in Mexican border towns during the period 1913 to 1915, inclusive:

1913	2
1915	87

NOTE.—One is said to have been killed by Carranza river guards and one was reported killed by Villa soldiers.

Mexicans reported killed in American territory as a result of firing across the international line during engagements in Mexican border towns during the period 1913 to 1915, inclusive:

1913	1
1914	2

NOTE.—For the years omitted in above tabulation no deaths appear to have been reported.

Total number of Mexicans killed as above, 92.

Total number of Americans killed on the American side as shown by foregoing list	20
Total number of American soldiers killed in United States territory as shown by foregoing list	16
Total number of Mexicans killed	92
Grand total	128

NOTE.—The lists of American civilians and soldiers killed on American territory, as above stated, are thought to be substantially correct. However, many of the border troubles occurred at a point in the interior of border States, where the local authorities had sole jurisdiction, and there were probably a number of persons killed of which no report was made to the State or War Department. The number of Mexicans killed, as shown above, is based on reports received by the State Department and is thought to be approximately correct.

O